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ORIGINAL ARTICLES.

SOME SALIENT POINTS IN THE DIAGNOSIS, PATHOLOGY, AND TREATMENT OF APPENDICITIS.¹

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APPENDICITIS, owing to its unusual frequency and alarming gravity, has become the most important intraabdominal inflammation encountered by the surgeon at the present time. Occupying this position, the subject is one worthy of the gravest consideration and sufficiently warrants the presentation of a few facts which I have learned in the careful study and treatment of a large number of cases. As many of these points have not been brought to the attention of the medical profession, I desire to emphasize them as much as possible and give to them the prominence which I feel they deserve. I refer most particularly to the early recognition of the varied symptoms of appendicitis, to a proper appreciation of the possible disastrous results of such a morbid process, and to the prompt application to all such cases of the most advanced surgery. I believe the time has arrived when those of us who have had the opportunity of observing and operating upon a number of cases of appendicitis should declare ourselves without fear and without reservation concerning the operative treatment.

A glance backward over a period of 18 months shows that there has been a decided wave of progress in the diagnosis and treatment of appendicitis; and that there has been developed a keener appreciation of its dangers and a more uniform acceptance of operative treatment than before. Many have been brought to justly realize, only through the school of bitter experience, the gravity that a comparatively insignificant pain in the abdomen may suddenly assume.

A tempest of argument has been raised, a storm of protests has been hurled against what has been called too radical surgery, and, as a result, the sea of life is strewn with human wrecks, absolutely lost or crippled beyond repair.

It would be only charitable for us to believe that those who to-day, either by voice or action, place themselves in the ranks of conservatives on this

question, have not encountered the experiences of many others in the treatment of this disease. Their apathy is the result of an inexperience which underestimates its destructive tendencies. Unseen and frequently unheralded save by a few premonitory symptoms, like ripples on the surface of calm water, the deadly process begins, but as those ripples broaden, so do the symptoms intensify until the whole body becomes agitated by the fury of the storm, and the question becomes one of life or death. I venture to say that among those present to-night there are some who can recall sad experiences with this foolishly styled "fashionable disease," appendicitis, in which the patient, who was supposed to be the subject of an acute attack of indigestion, in a few hours showed unmistakable evidence of a purulent peritonitis which resulted in death, or perhaps the peritonitis was confined to the right iliac fossa and terminated in an intraabdominal abscess, which when opened, the appendix not being removed, left the patient a chronic invalid from fecal fistula or subject to subsequent attacks, each one of which was attended with the awful uncertainty of death.

There are many cases in which inflammation of the appendix is so intense that necrosis sets in, and either perforation occurs or gangrene supervenes before there is even an attempt upon the part of nature to protect the peritoneum against infection. This is so common an occurrence that I am compelled to bring you face to face with the question, *Can you, or I, or anyone, presume to say when or where this condition will arise?*

In previous papers upon this subject I have laid stress upon the wisdom of early operation in acute attacks. A richer experience and a careful analysis of the knowledge acquired impel me to state again, in terms so strong that they cannot be misunderstood, that early operation is not only the safest, but the only sure road to recovery. Every case of appendicitis places one in the position of deciding immediately what is best to be done. The patient's life and future usefulness frequently hang upon the slender thread of your judgment. You may say that many cases get well without operation (that is, do not die from the attack), but should you rest content with a fair percentage of recoveries, when a much greater number would recover by operation?

I have been accused of being too radical upon the subject of appendicitis, of having removed normal

¹ Read at the meeting of the College of Physicians of Philadelphia, December 4, 1895.

appendices, but I have the courage of my convictions, and say to you that my statements are founded upon facts, and that if I can convince one of you, who may be skeptical, that what I say is true, then have my time and labor been well spent. In support of what I say I can produce the statistics of 200 operations performed between attacks, with two deaths, both of which deaths occurred in the first series of 100 cases.

DIAGNOSIS. I wish to emphasize a fact I have already stated in former articles, that is, that the diagnosis of appendicitis is an easy one to make. There are three cardinal symptoms which when present warrant without exception a diagnosis: the sudden onset of acute abdominal pain with or without vomiting occurring in one who was previously well; rigidity of the right side of the lower abdominal wall; tenderness over the site of the appendix.

It is not my intention to go over the entire subject of the diagnosis, the pathology, and the treatment of appendicitis, but to discuss some salient points not touched upon in the paper I read before the College, May 2, 1894, and which I hope will throw sufficient additional light upon this subject to clear the horizon for those who are still groping in the fog of uncertainty and doubt.

The affections with which I have seen appendicitis most commonly confounded are typhoid fever, pyosalpinx, ovarian abscess, pyonephrosis, abscess of the kidney, and perinephric abscess. I cannot understand why appendicitis should be mistaken for typhoid fever, particularly in the early stage of either affection, and yet upon more than one occasion I have seen the surgeon forced to defer an operation because the consensus of opinion of the majority of the medical attendants was opposed to such a procedure. In the early stages of the two affections the characteristic symptoms are distinct. The sudden onset, the rigidity of the right lower abdominal wall, and the tenderness which is more marked and smaller in area, being limited to the position of the appendix, are pathognomonic of appendicitis. In typhoid fever the slow onset attended by lassitude, headache, nose-bleed, etc., the temperature-record, the general abdominal tenderness with the accompanying peculiar doughy condition of the abdominal walls, the enlarged spleen, and the absence of rigidity, should be sufficient to establish a differential diagnosis with absolute certainty. If, in connection with these differential points, a digital examination of the rectum demonstrate a sensitive mass, then any doubt which may exist in the mind should be at once dispelled. Spots may be found in either affection, but they are not of any diagnostic value, as I believe that in both cases they are of septic origin.

Follicular abscesses of the appendix are responsi-

ble for some of the mistakes in the differential diagnosis between appendicitis and typhoid. The minuteness of the collections accounts for the mildness and the prolongation of the sepsis and the lessened degree of the local symptoms. In this type of appendicitis we have a constant source of absorption with a small amount of tissue involved. It is not uncommon to find cases which have been supposed to be typhoid fever, in which an operation has demonstrated the presence of macroscopic follicular abscesses in the appendix, varying in size from a millet-seed to a mustard-seed, an eroded, mucous membrane, and a more or less infiltrated organ.

The difficulties in making a differential diagnosis between appendicitis and typhoid fever in the later stage are more fancied than real. The early history, the local symptoms, on the one hand; and the general abdominal symptoms, with the dry tongue; the sordes on lips and teeth, the temperature-record, and the characteristic diarrheal stools, on the other hand, are quite sufficient to make the differentiation clear and distinct. The spleen is enlarged in both affections; in both instances as a result of sepsis. The enlargement, however, due to septic infection from an active suppurative process like appendicitis is likely to be associated with pain caused by a perisplenitis from embolism.

The following case is related to illustrate the fact that follicular abscesses in the appendix are capable of causing a train of symptoms which suggest to the medical man the probability of typhoid fever:

One morning in the early fall, my friend, Dr. M., called at my office, saying that he was worried about his little girl, who was ill, because the nature of the illness was not clear to him. He came to the city with the purpose of having one of our medical men see the child. He related to me the history of the case and showed me the temperature-record, and I suggested that the symptoms resembled those of subacute appendicitis. An appointment was made with the medical man, and I was asked to accompany him. This being impossible, I suggested one of my assistants and Dr. F., of the German Hospital, who were accepted. The consultation was held, but a definite conclusion was not reached, as the medical consultant believed the trouble to be typhoid, while Dr. F. and my assistant thought it appendicitis. The following day I was asked to see the child and to operate if I concurred in the diagnosis of appendicitis. This I unhesitatingly did, and operated at once. The following conditions were present: The appendix was situated behind the colon, to which it was adherent; the mucous lining of the tip of the appendix, which was club-shaped, contained several follicular abscesses, the largest of which was the size of a split pea. The recovery was uninterrupted and rapid; the symptoms which had suggested typhoid disappeared immediately after the removal of the appendix.

Before directing attention to the points of differentiation between appendicitis and the affections attended with pus-formation which may be confounded with appendicitis, permit me to say that the occasion for making a differential diagnosis between appendicitis with pus-formation and other forms of pus-collections should never arise, as in all cases of appendicitis the appendix should be removed before pus has formed.

The presence in the rectouterine cul-de-sac of an inflammatory mass in intimate relation with the uterus, which renders it partially or completely immovable, and which can be clearly outlined by vaginal or combined vaginal and rectal examination, in connection with the history of a vaginouterine infection, establishes the diagnosis of a pyosalpinx or an ovarian abscess. The essential thing in the differentiation between these two affections and appendicitis is the absence of a history of the three cardinal symptoms of the latter affection. This is also the essential point in the differential diagnosis between appendicitis and pus-affections of the kidney.

Too much stress cannot be laid upon the importance of urinary examinations, not only in the supposed kidney-affections before mentioned, but also in appendicitis. I have recently operated upon a case in which the urine contained pus and epithelium from the pelvis of the ureter, in which there was present a swelling in the right loin, accompanied by tenderness, extending in the direction of the attachment of the appendix, and in which a history of the three cardinal symptoms was elicited. I opened the right iliac fossa, finding the appendix, which was postcolic and contained pus, pointing north, adherent to and in communication with the pelvis of the ureter, through which the contents of the appendix were being emptied into the bladder, thus explaining the urinary symptoms. The recovery was uneventful.

In certain cases of appendicitis the pain is entirely referred to the left side. I wish to emphasize this point, as I have seen a number of cases in which the attending physicians who were familiar with appendiceal symptoms were totally misled. From my experience in operating upon a number of such cases, in which I invariably found the appendix holding a southerly position, I am prepared to make the statement that when the pain is referred to the left side, the appendix occupies the pelvis; also, that in this class of cases, when suppuration has taken place, resulting in a large pelvic collection, there is pronounced bilateral rigidity of the lower abdominal walls. Therefore when I am asked to see a patient, and the diagnosis of the ailment is not clear—with a previous history of the three cardinal symptoms, with the pain referred to

the left instead of the right side, with a temperature denoting a hectic condition, and bilateral rigidity of the lower abdominal walls—I am convinced that the case is one of suppurative appendicitis, in which both the pus-collection and the appendix occupy the pelvis. A rectal and vaginal examination under these conditions, with the exception of great pain, elicits nothing but a sense of fulness. The contrast between this condition and that of suppuration in the pelvis dependent upon uterine infection, to which reference has been made, is marked. The following case will illustrate the importance of these diagnostic points:

During the past summer I was asked to see Miss —, the history of whose illness was as follows: About two weeks prior to my visit she was suddenly attacked with what was at first supposed to be an attack of acute indigestion, which did not yield to the ordinary remedies. A provisional diagnosis of typhoid fever had been made, in view of the fact that the spleen was enlarged, spots were present, and the temperature was suggestive of an irregular case of typhoid. The suddenness of the onset, accompanied by acute abdominal pain with very decided bilateral rigidity of the lower abdominal walls, the temperature-record, the vaginal and rectal examinations which elicited great pain with the characteristic fulness only, pronounced the case one of suppurative appendicitis with a pelvis full of pus. I advised operation without delay. Adverse opinion of other counsel delayed the operation for a period of two days, at which time the pelvis was found to be full of stinking pus; the appendix, which was perforated and gangrenous, occupied the pelvis. The appendix was removed and the recovery was uneventful.

The citation of one case occurring in the person of the son of a physician, a most excellent diagnostician, will serve to illustrate the importance of the pain being referred to the left side, as indicating the position held by the appendix, viz., the pelvis; the cardinal symptoms were present:

Master A., son of Dr. E., was suddenly seized with acute abdominal pain, vomiting, and rigidity of the right lower abdominal wall, which followed the ingestion of numerous articles of indigestible food. After a period of three days, symptoms of acute peritonitis developed, at which time his father consulted me. He remarked that he would have regarded the case as one of appendicitis if the pain had not been referred to the left side. I told the father that, with all deference to him, I regarded the case as one of appendicitis demanding immediate operation. Two days later I was hastily summoned to see the son, whom I found suffering from a diffused peritonitis of an active type, with a pulse of 130, leaky skin, constant retching and obstipation. I declined to interfere, advised the discontinuance absolutely of opium or any of its preparations, and ordered small and repeated doses

of calomel to be given to the extent of free purgation, believing this a wiser course to pursue than operation. The boy apparently recovered from this attack. I then advised operation in order to prevent a recurrence of the trouble, but the father could not agree to have his son operated upon when he was apparently well. Within ten days a second attack occurred; I was again summoned, but being absent from the city other counsel was sought; the operation was again deferred, and the result was an incomplete recovery from the second attack. I was again consulted and again advised operation. The boy was brought to Philadelphia. The operation showed that the appendix, the tip of which contained a pus-collection, with an encysted abscess surrounding this, occupied the pelvis, being adherent to the floor of the pelvis and to the right of the rectum. The appendix was removed and the recovery was uneventful.

In those cases in which the pain is referred to the left side and the point of greatest tenderness is immediately above the pubis or in the left iliac fossa, the greatest intensity of the inflammation will be confined to the tip of the appendix. It is in this class of cases in which the appendix occupies the pelvis that bladder-symptoms, such as irritability, frequent micturition, and retention, are of value from a diagnostic point of view. The abrupt cessation of pain previously located in the region of the appendix, followed by fall of temperature, increased pulse-rate, and an anxious expression, indicates the occurrence of gangrene in that organ.

PATHOLOGY. The primary pathologic condition in an attack of appendicitis is catarrhal inflammation. The outcome of the attack after the catarrhal condition is established depends upon several important factors: 1st. Drainage of the organ; 2d. The character of the microorganisms present; and 3d. The presence or absence of fecal concretions or foreign bodies.

In a large percentage of cases the appendix holds a northerly position running up behind the cecum. This position favors, by gravity, the drainage of the organ. It also opposes the entrance of foreign matter and in such cases the primary attack is more likely to subside. The conditions are changed, however, in an appendix which has been the seat of an inflammation. In the process of healing of the mucous membrane lining the organ, strictures and twisting of the appendix due to contraction occur, which interfere with drainage and often entirely close its lumen. A condition I have met with is one of constriction with an enlargement on either side of the stricture, causing the appendix to assume an hour-glass shape. When the organ occupies any of the other positions than northerly, drainage is interfered with by gravity. An appendix which cannot drain itself and which becomes inflated is a menace to the life of its possessor.

The character of an attack varies with the asso-

ciation of the bacterium coli commune with the staphylococcus or with the streptococcus, the latter combination being by far the most unfavorable. When the bowel is red and excoriated the streptococcus is present, and the prognosis of the case unfavorable. I believe that the presence of a fecal concretion in appendicitis is a mere coincidence, and acts as a pathologic factor only by interference with drainage, thereby making perforation more likely, and also by constricting the entire lumen, and causing pressure and interference with the circulation, favoring gangrene of the organ to the distal side of the concretion.

Obstruction of the bowel is not uncommonly met in the various stages of appendicitis. Ordinarily this is due to bands, the result of the inflammation, or to the adhesion of the tip of the appendix to the adjacent bowel. I have recently met with a case in which the patient had been operated upon for the relief of a circumscribed abscess. The patient for ten days progressed favorably, and was considered to be beyond the danger-point. Suddenly symptoms of intestinal obstruction manifested themselves. The wound was reopened, and the obstruction found to be due to pressure upon the bowel, caused by the contraction of the abscess-cavity in the processes of healing.

Follicular abscesses of the appendix are frequently met. They are minute, often not larger than a millet-seed.

The postperitoneal lymphatics are sometimes affected secondarily, causing large retroperitoneal collections of pus. I have met with the pus of an appendicitis situated between the liver and the diaphragm, where it had burrowed behind the diaphragm and communicated with a bronchus, causing a purulent expectoration with an odor which indicated that gangrene of the lung was the cause of the patient's trouble.

I do not believe that leukocytosis is sound evidence of pus. I believe that ordinary means are sufficient to enable one to make the diagnosis, and that the time spent in demonstrating the leukocytes which prove nothing could be better utilized in liberating the collection.

TREATMENT. My paper has no doubt impressed you with the fact that in my opinion operation is the only treatment for appendicitis. The best results and the smallest mortality are obtained when the operation is performed at the earliest possible opportunity. The diagnosis can and should be made in a few minutes, and the operation should follow without the delay of days or even hours. If through doubt and delays immediate operation be impossible, then the quiescent period, that between attacks, is the next most favorable time. Operation at this period has been performed by me with a mortality of 1 per cent. in a series of two-

hundred cases, both deaths occurring in the first hundred. The added risks of operation for appendicitis when pus has already formed cannot be denied by any one who is familiar with the dangers which accompany such a condition of affairs. In fact, no surgeon or physician will deny that pus complicates and materially increases the danger of any operation, and particularly when that greatest of all absorbing surfaces, the peritoneum, is involved. Picture to yourselves the operation for the removal of an appendix before pus has formed—the clean abdominal incision; the removal of the diseased organ, with the closing in by serous flaps and the invagination of the entire stump into the cecum, with the subsequent closure of the abdominal wound, on the one hand; and, on the other, an abscess with its foul-smelling and infectious contents bathing the incision and contiguous parts; the unquestionably increased risk of infecting a peritoneum which nature has closed off by the removal of an appendix which has perforated and which is probably involved in the confining wall of the lymph; the necessity of drainage by gauze and tubes, with the increased likelihood of subsequent hernia, fecal fistula, etc. Can anyone who is familiar with these two conditions pretend to say that the former is not less dangerous and more desirable than the latter, or that the two conditions of operation do not bear the testimony of unbiased observers? There is, of course, a small percentage of recoveries following operations for abscess-cases in which the peritoneum has been generally infected; but this depends upon the amount and character of the pus and upon the operation being done before collapse has set in. I cannot say that I think it wise to operate upon a patient in collapse.

In operating upon pus-cases in which the appendix is involved in the wall of the abscess-cavity, I believe that it is possible and always advisable to make the operation a complete one, as in no other way is recovery assured. To leave an appendix which has sloughed off, or has a perforation in it, or which has been intensely inflamed by migration of microorganisms through its walls, with the certainty of fecal fistula or subsequent attacks, I believe to be bad surgery. It is my practice to remove the appendix in all cases. Certain it is that by the proper disposition of gauze and careful attention to technic, an appendix which is deeply imbedded in a wall of lymph, whether it makes a portion of the abscess-cavity or not, can be removed, and the dangers which attend its removal are far less than those which occur when it is allowed to remain. A practice which I believe is a frequent one is simply to evacuate the collection, there being no attempt made to remove the appendix if it be not plainly visible. This I consider,

with all due deference to the surgeons who practice it, incomplete surgery. Cases of congenital absence of the appendix are reported, but the congenital absence probably exists only in the mind of the searcher. I have never failed to find the appendix in chronic cases, although many times I have been able to find it only after a prolonged search and a careful dissection.

I beg the privilege of a few more minutes to relate the report of a case upon which I operated November 23, 1895, and which will serve, I hope, the purpose intended, namely, to disabuse the minds of those among you who are still of the belief that a patient who has apparently recovered from an acute attack has safely passed the danger-point, and that operation is superfluous:

A boy of 13 was referred to me by my friend, Dr. P. Moylan, with a history of three attacks of appendicitis. During the last attack he was under the care of Dr. Moylan, who said to me that at the time of his first visit a general peritonitis was present, and was attended with so much distention that he was unable to make out by examination the cause of the peritonitis. There was apparent recovery from this attack. Operation was by incision through the right semilunar line, opening up a cheesy mass situated beneath the transversalis muscle. The peritoneum beneath the collection had been destroyed and the posterior wall was formed by the great omentum. The cheesy material was curetted away and the cavity antiseptized. The great omentum was tied off around the involved portion and the latter cut away. The cecum contained two perforations which were brought to view after the removal of the diseased and adherent omentum. The appendix lay post-cecal, imbedded in a mass of lymph. It was perforated at its base. The pelvis contained a collection of pus which was confined by adherent coils of small bowel. The patient recovered.

In conclusion, I desire to say that an appendix that has been at any time the seat of inflammation will be a constant source of danger to the life of its possessor; that there is no medical treatment for the cure of appendicitis; and that, as Osler has so happily said, "the surgeon is frequently called too late—never too early."

1634 WALNUT STREET.

The Gonococcus as a Pyogenic Microorganism.—BUJWID (*Centralbl. für Bakteriol. und Parasitenk.*, B. xviii, No. 14, 15, p. 435) has reported the case of a man, 32 years old, with gonorrhœal urethritis demonstrated bacteriologically, in which a severe chill occurred two days after a catheterization. Later, four intramuscular abscesses developed—in the neighborhood of the left shoulder-joint, in the right popliteal space, on the inner aspect of the left leg, and above the right external malleolus. The pus evacuated from these in small amount was odorless and reddish-brown in color, and upon culture on serum-agar proved to contain gonococci in pure growth.

LABORATORY STUDIES.

THE RELATION BETWEEN THE SPECIFIC GRAVITY OF THE BLOOD AND ITS HEMOGLOBIN-PERCENTAGE.

BY F. C. BUSCH, B.S., AND A. T. KERR, JR., B.S.,
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THE investigation of the specific gravity of the blood has received more or less attention for a number of years. Among the first to study it were Nasse (1839), Davy (1839), Becquerel and Rodier (1844), Haro (1873), and Bizzozero (1879). Other investigators who have made valuable contributions to the literature are Schmidt, Senac, Boyle, Fano, Roy, and Arronet. In recent years most valuable researches have been made by E. Lloyd Jones, Schmaltz, Peiper, Siegel, Sciolla, Castellano, Copeman, Lyonnet, Hammerschlag, Hoch and Schlesinger, Sherrington and Copeland.¹

In 1890, Hammerschlag, after comparing the specific gravity with the hemoglobin-percentage in a large number of cases, constructed a table giving the percentages of hemoglobin for different specific gravities. In the winter of 1894-95 we began a series of observations to test the value of this table in the ordinary run of cases without limiting it to primary anemia. Hammerschlag neglects to state what method he used for the determination of the hemoglobin, but Hoch and Schlesinger give his table as based upon the Fleischl instrument. We have used for this purpose the methods of Fleischl and of Gowers, because they are in more general use than any others, take but little time, and are easy to manipulate. Henocque's spectroscopic method was not used because of the large amount of blood it requires, which would be especially an objection when used in connection with the other methods.

We made no count of the blood-corpuscles in comparison, but it has been found by Jones, Hammerschlag, Schmaltz, and others that the specific gravity corresponds more closely with the hemoglobin than with the number of red blood-corpuscles.

For determining the specific gravity of the blood a variety of methods have been used. One of the early ones was that of Haro (1873), who noticed that denser blood passed more rapidly through a tube of narrow caliber than did blood of lesser density. He noted the time it took bloods of different known densities to pass through a tube of certain caliber. He was thus able to estimate the density of an unknown specimen by noting the time it took to pass through the tube.

A good method of determining the specific gravity, but one which takes considerable time, is that with the pycnometer. This, as used by Schmaltz, is a capillary tube of 0.1 c.cm. capacity, which is first weighed empty, then when filled with water, and finally when filled with blood. The weight of the tube is subtracted and the specific gravity calculated from the weight of the blood as compared with that of the water.

Fano, in 1882, used a method which depends upon the principle that a body when immersed in a fluid will float

indifferently in that fluid when the specific gravities of the two are equal. The fluid used was a solution of gum in water. To make this heavier he added a denser gum-solution. To make it lighter he added water. Blood was introduced into this and the liquid made to correspond in specific gravity to that of the blood. The specific gravity of the liquid was then, determined and thus at the same time that of the blood.

Roy, in 1884, devised a method applying this same principle. He used solutions of salt or other suitable substances ranging in specific gravity from 1.035 to 1.075. For making the test he used a modified hypodermic syringe. This had a small steel tube prolonged inward from the tip so as to be seen through the glass sides of the barrel. The syringe was filled with a salt-solution and a drop of blood drawn into it. As it emerged from the steel tube into the solution he noted whether it rose or sank. If it sank, a new solution of higher specific gravity was chosen; if it rose, one of lower specific gravity was taken. Finally one was obtained in which the blood neither rose nor sank, or two were found in one of which it rose and in the other sank. In the latter case the specific gravity of the blood was between the two.

Roy's method as modified by Jones is as follows: The apparatus consists of from 20 to 25 one-ounce glass bottles filled with standard solution of glycerol and water, differing one from the other by 0.001 specific gravity and ranging from 1.027 to 1.075; a number of fine glass pipets drawn out to a point and bent at right angles near the tip; a cylindric glass jar of about one-dram capacity; and a number of clean suture-needles. By means of the pipet the blood is introduced into the one-dram jar filled with one of the standard solutions chosen by guess from the appearance of the patient. It is then blown out gently, being given an impetus in a horizontal direction owing to the bent tip of the pipet. If it rises or sinks other solutions are chosen, as in Roy's method.

Landois used solutions of sodium sulphate ranging between 1.050 and 1.070.

Siegel has adopted a device whereby the frequent standardization with the Jones-Roy method is diminished. He covers the surface of his standard solutions with a layer of olive-oil, introducing the blood through this by means of a glass tube which is closed by a rubber-cap.

Dastre employs a mixture of olive-oil and carbon chlorid (CCl_4), which, he says, neither mixes with nor coagulates the blood.

The method which we have used is that devised by Hammerschlag. The necessary apparatus consists of a hydrometer-jar, a hydrometer, a pipet of small caliber, a glass rod, some fine steel pens, a bottle of chloroform, one of benzol, and a mixture of the two. The mixture of chloroform and benzol is poured into the hydrometer-jar. The finger, after being washed with bichlorid and alcohol, is punctured. A good-sized drop of blood is introduced into the chloroform-benzol mixture. If the drop sinks, the mixture must be made heavier by adding chloroform. If it rises, the mixture is too heavy and must be made lighter by adding benzol.

It is desirable not to divide the drop of blood into several, but, on the other hand, care must be taken to get the chloroform and benzol thoroughly mixed by stirring

¹ For a good account of the history of this subject see Castellano.

with the glass rod. In order to obtain this end it is better, when the liquid is too heavy, to add an excess of benzol, and then obtain the required density by adding chloroform slowly and carefully until the drop of blood floats indifferently in the mixture. When this occurs, the drop of blood is of the same specific gravity as the mixture, and by determining that of the mixture with a hydrometer we know the specific gravity of the blood.

We have found it most convenient to obtain the blood from the middle finger of the left hand, making our puncture to the side of the tip on the palmar surface. For this purpose we have used an ordinary steel pen, with one nib broken off. The pen was sterilized by heat and a new one used for every test. The blood was drawn up into a pipet of fine caliber, which was introduced into the middle of the chloroform-benzol mixture, and nearly all of the blood gently blown out. *We were careful not to blow out all of the blood, but left a little in the tip of the pipet, shaking off the rest.* The object of this was to avoid mixing air with the drop and thus obtaining an incorrect result.

The same chloroform-benzol mixture may be used repeatedly. After each test, in order to get rid of the drop of blood, it is filtered. The hydrometer-jar should be scrupulously clean. Otherwise some fine particles in it may adhere to the drop of blood and thus cause an error.

The hemoglobinometer of Gowers is usually manufactured with but one colored tube, which is for use with daylight only. There is another form in which there are two tubes, one for use with daylight and the other with artificial light. The one we have employed is of the former kind. In making the comparison with it one must hold the instrument against a white background, opposite the source of light, or, as recommended by Landois, between the eye and the light.

In the use of Fleischl's hemometer artificial light is necessary, and the test must be made in a room from which daylight is excluded. When tests are to be made with patients confined to bed, it is very inconvenient and causes loss of time to be obliged to run to a dark room in some other part of the ward or building every time a test is to be made. We have been able to obviate this difficulty by a simple device, enabling us to carry our dark room with us. A piece of ordinary cardboard is cut so as to fit over the top of the canvas travelling-bag in which we carry our instruments. The hemometer is placed in one end of the case and a small lamp in the other. A hole is cut in the cardboard to give passage to the lamp-chimney. Another small hole is cut so as to be directly over the well of the instrument. At the side of this hole a window, closed by a cardboard flap, is cut for the introduction of the hand in order to move the wedge of the instrument.¹

Siegel showed that the glycerol-water and the chloroform-benzol methods gave practically the same results, and Hammerschlag found that the chloroform-benzol methods and the pycnometer differed very slightly. Therefore, it appears that the results obtained by the use of these three methods are essentially the same.

¹ The capillary pipets for each Fleischl instrument are graduated for that particular instrument. The capacity of these is indicated on the screw that binds the table of the instrument-stand to the supporting leg, as well as on the handle of the pipet itself.

The pycnometer requires a very accurate balance, such as is used for the finest chemic work. Such a balance cannot readily be moved from place to place. The glycerol-water method, though said to take less time than the chloroform-benzol method, requires the keeping on hand of twenty or thirty solutions which must be frequently standardized. The chloroform-benzol method requires little apparatus, is easily procured, inexpensive, always at hand, and needs no standardization.

It was found by Roy and Jones that the influence of room-temperature made no difference in their results. Hammerschlag also determined by experiment that room-temperature did not influence tests made with his apparatus. Therefore, we have in no case corrected for differences in room-temperature.

The specific gravity in health has been differently given by different observers.

MALES.

Bennet	1.055-59
Perrier	1.056-59
Frenn	1.062
Davy	1.052-60
Nasse	1.055-59
Becquerel and Rodier	1.058-60
Muschenbroeck	1.056
Denis	1.059
Schmidt	1.060
Loyd Jones	1.058
Schmaltz	1.059
Becker	1.054-60
Landois	1.056-59

FEMALES.

Perrier	1.051-55
Davy	1.045-56
Nasse	1.051-55
Becquerel and Rodier	1.054-60
Schmidt	1.050
Quincke	1.058-60
Jones	(about) 1.055
Schmaltz	1.056
Becker	1.057-56
Landois	1.057-55

Hammerschlag found that in healthy males (between the ages of twenty and forty years) the specific gravity varies from 1.057 to 1.0625, and in females from 1.0535 to 1.061.

Jones states that venous blood is denser than arterial blood. Sherrington and Copeland found almost no difference between arterial and venous blood. In passive congestion, as in a ligated finger, they agree that there is an immediate rise in specific gravity. This rise vanishes at once upon the disappearance of the congestion.

A characteristic property of the blood is to keep its specific gravity constant. Thus, after drinking large amounts of fluid, the change in the specific gravity of the blood disappears in from one-half to one hour. Sherrington and Copeland found that after injecting large quantities of salt-solution into the blood of rabbits the specific gravity of the blood returned to the normal in a very short time. It was discovered by Hoch and Schlesinger that a marked change in the specific gravity of the blood as a whole might take place without affecting that of the serum. Therefore, it appears that usually the principal factors in a change of specific gravity of the blood from the normal are in the cellular constituents.

Of the solid constituents of blood in man, the hemoglobin constitutes about 60 per cent. (according to Hoppe-Seyler). In females it is somewhat less. This being the case, variations in the percentage of hemoglobin must immediately affect the specific gravity of the blood. Hammerschlag maintains that it is possible therefore to determine from the specific gravity, accurately enough for clinical purposes, the percentage of hemoglobin for a given sample of blood.

The table of Hammerschlag, which it has been our object to test, is as follows:

Specific gravity.	Hemoglobin.
1.033-1.035	25-30 per cent.
1.035-1.038	30-35 "
1.038-1.040	35-40 "
1.040-1.045	40-45 "
1.045-1.048	45-55 "
1.048-1.050	55-65 "
1.050-1.053	65-70 "
1.053-1.055	70-75 "
1.055-1.057	75-85 "
1.057-1.060	85-95 "

According to Hammerschlag, this table holds best for cases of anemia, including chlorosis, tuberculosis, and malignant tumors. But in interstitial nephritis the specific gravity is relatively lower than the hemoglobin. In circulatory disturbances, even when edema is present, the specific gravity is generally normal. In fever it is relatively lower than the hemoglobin, rising after the fall of the fever.

We have investigated the specific gravity of the blood in 150 cases, at the same time determining the amount of hemoglobin by the methods of Fleischl and Gowers. These cases embrace a wide range of diseases, and hemoglobin-percentages varying between 12 and 110. Out of the 100 consecutive cases taken for comparison of the three methods, the amount of hemoglobin estimated from the specific gravity and as determined by the Fleischl method differed by less than 5 per cent. in 24 cases; between 5 per cent. and 10 per cent. in 24 cases; between 10 per cent. and 20 per cent. in 26 cases; and more than 20 per cent. in 26 cases. The specific-gravity method ran below the Fleischl in but 15 cases and in 5 of these less than 5 per cent. Therefore the differences observed usually showed the readings higher by the specific-gravity method than by the Fleischl instrument.

In the same cases the readings of Gowers' apparatus differed by less than 5 per cent. from Fleischl's in 36 cases; between 5 per cent. and 10 per cent. in 21 cases; between 10 per cent. and 20 per cent. in 33 cases; and by more than 20 per cent. in 10 cases. As a general rule they were higher than with Fleischl's, but not quite as high as those estimated from the specific gravity. Comparing the percentage obtained from the specific gravity with the Gowers' readings, in 33 cases there was less than 5 per cent. difference; in 31 cases the difference was between 5 per cent. and 10 per cent.; in 26 cases between 10 per cent. and 20 per cent.; and more than 20 per cent. in 10 cases.

From the foregoing comparison, it appears that in approximately one-half of our cases the hemoglobin as determined from the specific gravity corresponded quite well with the hemoglobin as determined by the Fleischl hemometer; that this correspondence was fair between

the specific-gravity determinations and the Gowers determinations in more than one-half of our cases; that there was a somewhat closer correspondence between the determinations from the specific gravity and the Gowers than there was between the Gowers and the Fleischl instruments; that the Fleischl instrument gave relatively lower readings.

The differences in the readings of the three methods may be due: (1) to errors in the specific-gravity method; (2) to the inaccuracy of the table giving the hemoglobin-equivalent for the specific gravity; (3) to the errors of the Fleischl and Gowers instruments.

We are convinced that both Fleischl's and Gowers' instruments, particularly the latter, are liable to err to a considerable degree. Osler says that the error in the Fleischl instrument may not be more than 2 per cent. in blood which is nearly normal, but he cites Neubert and Letzius as having shown that in a much impoverished blood the error may be as high as 20 per cent. In using two Fleischl instruments in comparison in the same cases, we have generally found a difference in reading between the two. In 30 per cent. of these comparisons the difference was as much as 10 per cent. We have also found that in about one-fifth of our cases we disagree in our readings of the same instrument. Forty per cent. of these differences were more than 5 per cent.

We feel some hesitancy in stating that in consecutive tests, made with the same Fleischl instrument, in the same cases, within a few minutes, we have found differences in readings of as much as 10 per cent. This occurred to us after having used the instrument almost daily for nearly a year, and after having used it many hundred times. Such errors can only be explained by acknowledging inaccuracy in technic, but a method so easily liable to such serious errors could hardly be relied upon for more precise results in the hurry of ordinary clinical work.

In the same series of consecutive tests, the specific gravity and the hemoglobin-percentage as determined by it, varied to an insignificant degree. The hemoglobin-percentages as determined by the Gowers instrument, in some of the tests, varied as much as 10 per cent. In our experience with the Gowers instrument, we have found it very unsatisfactory. It is often quite impossible to get the tint of the diluted blood to correspond with that of the standard 1 per cent. solution. Even when this is attained, a difference in shade may be produced by looking at the instrument somewhat from the side instead of from straight in front, by holding the paper for reflection farther away from or nearer the instrument, by holding the instrument between the eye and the window, or by moving farther away from the window. In the last case, in a number of instances, the differences produced by moving 20 feet away from the window became as much as 15 per cent. higher. Therefore it would seem that on a cloudy day readings would be higher than on a bright day. The differences in readings between holding the instrument against a white background and holding it directly between the eye and the light were as much as 10 per cent.¹

As may be seen from the foregoing comparisons and the observations of others the Fleischl instrument is not

¹ See Limbeck, pp. 18, 19, for analogous observations.

entirely reliable; therefore Hammerschlag's table, which is based upon this instrument, must be inaccurate. Taking all these conditions into consideration, there appears to be quite a constant correspondence between the specific gravity and the percentage of hemoglobin, and we think that, with a table based upon a much larger number of cases and a more reliable estimation of the amount of hemoglobin, this method would be as accurate for clinical purposes as the methods now in vogue, and possibly more so.

If such a table existed, it would be extremely simple to construct a hydrometer with a long narrow stem having the scale of specific gravity on one side and the corresponding hemoglobin-percentage on the other. By using such an instrument the specific gravity and the hemoglobin could be determined at the same time with the greatest facility.

Incidentally in the course of our work we have had a number of cases of epilepsy. In 12 cases of that disease we found in all but one that the hemoglobin determined from the specific gravity was at least 10 per cent. higher than by the Fleischl hemometer. Jones says that the specific gravity is frequently above the normal in the post-epileptic state. In 13 cases of syphilis we found that as a rule the hemoglobin ran lower than in health. There was quite a constant correspondence between the estimation of the hemoglobin by the Fleischl instrument and with the specific gravity. Jones finds that the specific gravity in syphilis runs low.

In a case of splenic leukemia the specific gravity was 1.052, and the hemoglobin by Fleischl's hemometer 40 per cent., the hemoglobin by Gowers' 68 per cent., and hemoglobin calculated from the specific gravity was about 68 per cent.

In conclusion our results may be briefly summarized as follows:

1. The percentage of hemoglobin in blood in most cases may be predicted from the specific gravity with sufficient accuracy to be valuable for clinical purposes.

2. Fleischl's hemometer is liable to an error of 10 per cent.

3. Gowers' instrument is liable to an error even greater than that of Fleischl's.

4. The error in technic with the specific gravity method is likely to be very slight.

5. In following up a case with Fleischl's or Gowers' instrument very erroneous conclusions may be drawn. Mistakes may be made of 5 per cent. or 10 per cent., too low one day and 5 per cent. or 10 per cent. too high on another.

6. In following up a case the specific-gravity estimation seems to give very slight error, and even if from it the absolute percentage of hemoglobin could not be determined, yet the relative increase or decrease of hemoglobin from one day to another might be quite accurately estimated.

7. Because of its being based on the instrument of Fleischl, Hammerschlag's table is of necessity only approximately accurate.

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"LIQUID PEPTONOIDS."

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"LIQUID peptonoids, beef, milk, and gluten perfectly digested. Contains the albuminoid principles of beef, milk, and wheat, entirely digested and ready for assimilation. It represents a valuable nutritive cordial, and

will be taken by patients who are unable to digest food in any other form, and in these cases it has been found of the greatest service"—so says the label on the bottle, which, by the way, was left at my office by an agent of the manufacturer, and hence is presumably at least a fair sample of the trade-supply. The preparation is sweet, aromatic, alcoholic, and altogether quite agreeable.

As this preparation has been recommended not only by the manufacturers, but by physicians who have employed it in typhoid fever and other conditions demanding easily assimilable food, I have been interested to know just what it contained. A letter of inquiry addressed to the manufacturers not having been answered, I have subjected two sample bottles to the following tests:

Boiling, with and without nitric acid: no precipitate, and hence no albumin.

Heller's ring-test, with cold nitric acid: No. 1, no ring; No. 2, slight cloudiness; hence a trace, at most, of albumin or albumose.

Addition of ammonium sulphate: no precipitate (No. 1), hence no form of albumin except possibly peptone.

Ring-test with alkaline copper-solution: no rose tint, hence no peptone or albumose.

Addition of iodin: slight reddish tint, hence no starch, but probably erythrodextrin.

Addition of tannic acid: abundant precipitate. This reagent is precipitated by so many substances that the significance is not apparent.

Boiling with alkaline solution of copper sulphate: abundant reddish precipitate, hence sugar.

On evaporation, 100 c.cm. of the "liquid peptonoids" yielded a sirupy mass which, on further drying at rather too high temperature, gave forth the odor of caramel, and was evidently slightly charred. The dry residue weighed 7 grams, and was mainly composed of sugar. Dialysis left nothing but the charred particles. In order to make sure that the drying had not carbonized some of the proteids—a supposition that was improbable, as no characteristic odor was noted—a quantity of the original liquid was dialyzed for several days, the water in the dialyzer always yielding sugar, and the liquid that did not pass through the parchment-paper was tested. It still contained sugar, showing that the dialysis was not complete. On evaporation over a Bunsen flame a small amount of sirup was obtained, which was then allowed to evaporate at the temperature of the room and then redissolved in cold water. Although the temperature used in evaporating had been sufficient to precipitate ordinary albumins and gelatinous substances, there was no residue after redissolution. Tannic acid, however, still gave a slight white precipitate and iodin a reddish tinge, presumably due to erythrodextrin.

As the word *peptonoid* is not in official use, it would not be fair to insist that it should apply to true peptone. It suggests, however, some form of peptonized albumin or gelatin, and it must indicate the presence of some proteid in order to fulfil the claims made for the preparation as a nutritive. Yet the reaction with tannic acid is the only one that even suggests a proteid, even the xanthoproteic reaction being absent.

This report is not intended to condemn "liquid peptonoids;" even if the liquid contains nothing but sugar, dextrin, and alcohol it has some value, though it is

manifestly not suited for sustaining life in typhoid fever or any other wasting disease. The burden of proof rests with the manufacturers to show why the tests enumerated do not reveal the presence of the albuminous substances which are implicitly claimed; they should certainly not ignore a specific inquiry as to composition when it comes from a possible customer.

Granting that "liquid peptonoids" contains all that is claimed for it, the medical profession should not accept and medical journals should not advertise a preparation whose true formula is not given. We are not children to be put off with such explanations as "This is nutritious," or "alterative," or "valuable in uterine troubles," or "composed of derivatives of the aromatic group," or "a combination of analgesics." The very fact that manufacturers can afford to market their wares on such generalizations shows that a large proportion of us are lacking in brains or backbone, or both.

POSTSCRIPT BY DR. HENRY LEFFMANN, OF PHILADELPHIA.

The examination of a sample of "liquid peptonoids" purchased in the original package in Philadelphia confirms the statements made by Dr. A. L. Benedict. The article is a clear, brownish fluid with a distinct vinous odor. It leaves, on evaporation by the steam-bath, 11.2 per cent. of residue containing much carbohydrates. The liquid portion contains much alcohol. There is no unconverted starch, and but a small quantity of proteids.

The "Beef-peptonoids" manufactured by the same firm was also examined, and found to contain much undissolved starch. Under the microscope numerous granules of wheat-starch can be seen. Some proteid matter in a soluble form is also present.

MEDICAL PROGRESS.

Syringomyelia of Morvan's Type in a Child.—THOMAS (*Revue Médicale de la Suisse Romande*, 1895, No. 11, p. 596) has reported the case of a boy, six years old, who presented himself on account of diarrhea, but whose hands were noticed to be large, though short, as well as cyanotic, and to display other peculiarities. The last phalanx of the left index-finger had almost entirely disappeared, a small fragment of nail remaining. The same phalanx of the middle finger was separated from the rest of the finger by a deep furrow. The extremities of the thumb, of the ring-finger, and of the little finger were swollen and the nails incurvated. The terminal phalanx of the right thumb had disappeared; the ring-finger and the little finger presented the thickened remains of nails. The thenar and hypothenar eminences were less well developed than the other muscles of the upper extremities, although not displaying marked atrophy. The muscles of the lower extremities were not well developed and the feet were cyanotic and cold. The skin over the knees presented a number of cicatrices from previous injury. The nails of the great toes were thickened; the last phalanx of the right little toe had been lost in consequence of a burn. In standing, the child had a tendency to incline the body forward; in walking, the legs were separated and the heels were trodden upon. The station was unsteady. Tactile sensibility was normal, while painful sensibility was impaired upon

the hands and feet; there appeared also to be thermesthesia. The knee-jerks were abolished. Urine was under control, but the sphincter ani was incontinent. Electric examination disclosed only quantitative changes, the muscles contracting in accordance with their volume. It was further learned that the child had been born asphyxiated at term, after a difficult labor. He had been nourished from the bottle and had suffered considerably from digestive disorders. His first tooth appeared at eighteen months, and he was not able to walk until he was five years old. At the age of four years he had been burned by a hot brick being kept too long in his bed. He had been operated upon for phimosis and had been twice cauterized over the sternum. He had also had measles and whooping-cough. The precise date of the onset of the disease could not be determined. It had, however, been noted for two years that the child burned himself frequently and had repeated destructive whitwows without complaint of pain.

Two Cases of Hereditary Congenital Night-blindness.—ATWOOD (*Royal London Ophthalmic Hospital Reports*, 1895, vol. xiv, part i, p. 260) has reported the case of a young man who had never been able to see clearly at night. When out after dark he had to exercise great caution in order to avoid knocking against other people and objects in his path. The man related that this peculiarity had existed in different members of his family for at least three generations. He had two sisters and two aunts who were night-blind. His father and grandfather had been similarly affected. The patient's vision was 6/6 in each eye and accommodation was normal. The visual fields were normal, both for white and for colors, when taken by diffuse daylight; on lowering the illumination, they were much contracted. Direct vision did not appear to be excessively diminished on lowering the illumination. Appreciation and discrimination of color were perfect. Ophthalmoscopic examination disclosed only physiologic cupping of the discs, and pulsation in some of the retinal veins. A sister of this patient, a hospital-nurse, complained of the same difficulty of seeing in a bad light, to such a degree that she was afraid to venture out of doors alone at night. The right eye had been operated on for internal strabismus. The girl's refraction was hyperopic. The visual fields were normal except that those for green were slightly and uniformly contracted. The pupils were active; the media clear; the discs and retinal vessels normal. The ground of the fundus was dark and looked granular, but there was no pigment to be found in the retina; neither were any spots to be seen at the macula or elsewhere. The choroidal vessels were very apparent. Neither of the cases presented nystagmus. Both had dark hair and there was no lack of pigment in any part of the uveal tract.

Intrauterine Rupture of the Anterior Abdominal Wall.—BROTHERS (*New York Medical Journal*, vol. lxii, No. 23, p. 707) has reported the case of a newborn infant presenting partly developmental and partly acquired lesions of intrauterine origin. The mother was a multipara who had experienced no difficulty in previous labors. The pregnancy in question had been attended throughout with considerable pain, but there had been

no known fall or injury. Labor was rather precipitate, the child striking the floor with some force after expulsion. It was alive, but presented, a half-inch to the right of the umbilicus, a rent of the abdominal wall an inch in diameter, through which from fifteen to twenty inches of the small intestine had escaped. The child was well nourished. The umbilical opening was entirely closed and contained the stump of the cord. The opening in the abdomen was somewhat ragged and along one margin presented distinct adhesions to the gut. The intestine was much congested and swollen and the mesentery discolored. Further investigation disclosed the absence of genitals and anus. Instead a large open space covered with mucous membrane, a little more than an inch in diameter, extended from the pubes to the coccyx. To either side of this cloaca (which represented the extrophied bladder) were small projections representing the ununited halves of the clitoris. The child lived for twenty-five hours, the napkins showing that urine was secreted. The belief is expressed that the rupture of the abdominal wall and the eversion originated within the uterus, perhaps from some unnoticed maternal traumatism.

Dislocation of the Shoulder-joint of Unusual Origin.—BAXTER-TYRRE (*Lancet*, No. 3767, p. 1165) reports the case of a man who was riding a horse that ran away up a steep hill. After going a few hundred yards the animal abated its speed, when the rider raised his hand to strike. The horse, catching sight of the whip, sprang forward, while the man felt an acute pain and a sense of something having given way at his shoulder. He did not fall off, but rode a little further and was helped to dismount. On examination a subcoracoid dislocation of the head of the humerus was found. The explanation is that as the weight of the whip was inconsiderable (four ounces) the inertia of the arm converted it into a lever of the first order. The coraco-acromial arch, instead of fulfilling its normal function of preventing displacement, acted as a fulcrum. The limb from the fingers to that point acted as the "long arm," and the head and part of the neck of the humerus served as the "short arm." The inertia of the arm, left behind as it were, supplied the power, while the ruptured capsular ligament and displacement of the head of the bone would represent the work done.

The Influence of the Antitoxin-treatment of Diphtheria upon the Duration of Intubation.—As the outcome of a careful clinical study, BOKAI (*Deutsche medicin. Wochenschrift*, 1895, No. 46, p. 755) has found that the period of definitive extubation oscillates between two wide extremes, in his own experience, between a quarter of an hour and 360 hours. The average duration of intubation before the advent of the antitoxin-treatment of diphtheria was 79 as against 61 hours in the cases subjected to this treatment, a gain thus of 18 hours. In view of the fact that in 16.2 per cent. of cases in which intubation was successfully practised the period of intubation exceeded 120 hours, the recommendation to perform secondary tracheotomy to prevent pressure-ulceration in case definitive extubation cannot be performed in five days, is not to be indorsed. The time for performing secondary tracheotomy under these con-

ditions is a variable one. The undoubted existence of ulceration from the pressure of a tube is an indication for tracheotomy, but the fear of such an accident is not.

The Transmission of Tuberculosis Through the Sexual Organs.—As a result of an extended study, DOBROKLOŃSKI (*Vratch*, May, 1895; *Revue de Tuberculose*, 1895, No. 3, p. 195) arrives at the conclusion that the existence of primary tuberculosis of the genital organs in men and in women is indisputable and that the presence of the tubercle-bacillus in the genital secretions is possible, so that infection may take place if the tubercle-bacillus comes in contact with the mucous membrane of the genital tract. It is probable, however, that infection will take place only when a tuberculous focus exists in the genital organs of a tuberculous individual. This latter condition is so uncommon that infection through this channel must be rare. Tuberculosis of the genital organs may remain localized and give rise to no symptoms for a long time, throughout which the danger of transmission naturally exists. Investigation has also shown that tuberculosis may be transmitted in sexual intercourse between those with pulmonary tuberculosis, even in the absence of tuberculosis of the genital organs.

The Microorganism of Measles.—CZAJKOWSKI (*Centralbl. für Bakteriologie u. Parasitenk.*, Bd. xviii. Nos. 17, 18, p. 517) relates that since his first observation in 1892 he has studied bacteriologically the blood of 56 cases of measles—in 37 only microscopically, but in 19 by culture and animal experiment—and he invariably found one special organism. This he describes as a slender bacillus with blunt ends and actively motile. Most frequently single organisms are found in the blood-plasma, often attached by one extremity to a red blood-corpuscle; less commonly irregular groups of bacilli are to be seen. The organisms vary in length, the smallest being not quite 5μ long and less than half as thick; bacilli measuring the diameter of a red blood-corpuscle are common. The organism stains with the usual anilin colors and not by Gram's method. Cultures develop upon various liquid and solid media containing albumin, with the exception of gelatin and agar. Their growth seems to be favored by the pressure of blood or hemagogen. The best culture-medium is sterilized ascitic fluid. Rabbits proved refractory to inoculation; mice succumbed, with symptoms of septicemia, and the special bacilli were found in the blood and parenchymatous organs.

A Case of Intractable Galactorrhea.—TUSSEN BROEK (*Nederlandsch. Tijdsch. v. Verlosk. en Gyn.*, Bd. v, Afl. 2) has reported the case of a woman, 31 years old, married four years, who was unable to nurse her child on account of total absence of nipples. The use of atropin, potassium iodid, and electricity failing to control the persistent galactorrhea, which had existed for five months and which had resulted in great emaciation, the breasts were amputated and recovery soon ensued. Microscopically the milk-globules were of variable size; colostrum-corpuscles could not be found. The removed organs were large and soft, and presented histologically deviations from the normal that led to the view that the galactorrhea was due to increased secretion.—*Der Frauenarzt*, 1895, No. 11, p. 504.

THERAPEUTIC NOTES.

The Treatment of Eclampsia.—ZWEIFEL (*Centralblatt für Gynäkologie*, 1895, Nos. 46, 47, 48) details at considerable length the various plans employed at the women's clinic at Leipsic in the treatment of eclampsia, together with the results secured. This experience leads to the following conclusions: When the convulsions set in during labor, this is to be terminated in narcosis as speedily as possible. Should the cervix be softened but the os not dilated, dilatation should be carefully effected with the aid of distensible rubber bags, or, at most, small incisions may be made. If, however, the cervix is not obliterated, although the os will admit a finger, rubber bags should be employed; longer incisions will now be required. Should the convulsions continue after the uterus have been emptied and hemorrhage not have been excessive, free venesection may be practised, especially if the arterial tension be high. Under the latter condition blood may be withdrawn even before labor if the cervix be unyielding. Nothing is to be given the narcotized patient to swallow; fluid may be introduced into the stomach through the tube; lavage is to be practised when digestive disturbance exists. Either chloroform or ether may be employed to induce narcosis. The most rigid asepsis is to be observed throughout, as infection may be responsible for a continuance of the attacks.

Poisoning with Nitric Acid.—MOSEN (*Brooklyn Medical Journal*, vol. ix, No. 12, p. 755) has reported the post-mortem findings in case of poisoning with nitric acid. The mucous membrane of the mouth was yellow, that of the esophagus softened. In the latter the longitudinal folds were abnormally prominent, and covered throughout their entire length by yellowish streaks. The mucous membrane between these folds was a little reddened and soft, but not stained. The mucous membrane of the stomach, from its cardiac to its pyloric extremity, was converted into a thick, greenish-black slough. The mucosa was thrown into prominent folds. There was no perforation. The mucosa of the duodenum was softened and yellow. The small intestine was but slightly affected, and contained a black fluid. The intestinal discharges were of a bloody character. The heart, the blood, and the spleen presented no change. The kidneys and liver showed parenchymatous alterations. The pancreas was the seat of parenchymatous inflammation, with punctate hemorrhages.

Surgical Uses of Kerosene.—SCHIRMAN (*New York Medical Journal*, vol. lxii, No. 23, p. 720) reports the satisfactory employment of kerosene as a local application to wounds and ulcers of the trunk and extremities. Ulcers, especially indolent and atonic ulcers, were smeared with commercial kerosene, either pure or diluted (from 35 to 50 per cent.) with alcohol, by means of a small camel's-hair brush or with a piece of gauze soaked in the solution. The appearance and character of the ulcers soon changed for the better, the discharge gradually diminished, and in from two to four weeks the rapidly granulating surface formed a scar without any contraction in the surrounding parts. The advantages claimed for kerosene are rapidity of action, economy of cost, and freedom from complications and toxic effects.

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THE SERUM-TREATMENT, WITH ESPECIAL REFERENCE TO DISEASES OTHER THAN DIPHTHERIA.

ABOUT a year ago the principles underlying blood-serum therapy were discussed at some length in these columns. At that time it was stated that in all probability not only had a real curative agent for diphtheria been found, but also that, as a consequence, the working out of similar therapeutic measures for many, if not for all, of the acute infectious diseases might justifiably be prophesied. The experience of the year just past has fully confirmed the most sanguine hopes entertained concerning the antitoxin-treatment of diphtheria, and to Behring and to the investigators in bacteriology who made his researches possible are due the gratitude of a world of mothers and fathers, in that a disease which perhaps more than any others is a household dread has been rendered when uncomplicated almost as innocuous as an ordinary cold. At the close of an article containing the masterly presentation of statistics already referred to in THE News, Dr. Welch makes the following remarkable statement: "The results of the treatment of over 7000 cases of diphtheria by antitoxin demonstrate beyond all reasonable doubt that antidiphtheric

serum is a specific curative agent for diphtheria, surpassing in its efficacy all other known methods of treatment for this disease. It is the duty of the physician to use it!"

The attempt of Gottstein to prove the fallacy of certain of the statistics concerned, although somewhat disturbing to "those of little faith," has been convincingly combated by Behring in his address delivered this summer at Lübeck, in which he carefully considers the different data in question, and makes strikingly evident by a series of graphic curves the real condition which prevailed. Behring claims that, taking everything into consideration, the mortality in diphtheria may be reduced by at least 75 per cent. by the application of the antitoxin-treatment. For example, according to the mortality-reports, there are in Germany, a country of 46,000,000 of people, on the average 60,000 deaths yearly from diphtheria. Of these, then, and they are mainly among children and young people, according to Behring, it would be possible to save the lives of at least 45,000.

There is no virtue in a skepticism which remains uninfluenced by facts. The reading of the two articles referred to, even without taking into consideration the standing of the authors, can hardly fail to convince any individual with a logical mind that the efficacy of the antitoxin-treatment of diphtheria has been definitely established.

Considerable advances have been made too in the matter from a technical standpoint, particularly with reference to the concentration of the serum. As a result of suggestions offered by Ehrlich, the serum can now be obtained in much more concentrated forms than before. The fear that the demand for serum could never be met by the supply has been dissipated. Behring has calculated that, should diphtheria continue in its ordinary prevalence in Europe and America, from one-million to two-million doses of the curative serum would be required yearly. The establishment at Höchst-on-the-Main, is already capable of an annual output of over one-million doses of five-hundred antitoxin-units each. If one institution can do this there need surely be no fear concerning the possibility of the production of a world-supply.

Though naturally most attention has been directed toward the antitoxic serum as a curative agent, its virtue as an immunizing agent has not remained unrecognized, and the injection of the fluid as a prophylactic measure is coming continually more and more into use. Now that many of the dis-

agreeable phenomena, *e. g.*, urticaria, can be obviated by beginning with smaller doses than those first employed, the objections to the employment of the serum are being removed. The results of experimental immunization have yet to be determined in a much larger number of cases and in various countries before the time will come for passing judgment upon this aspect of the subject. Behring believes that in the end, through the combined influence of the new therapy and prophylaxis, we may confidently expect that the dread of diphtheria will ultimately become a legend handed down from ancestors.

Concerning the exact nature of the immunity conferred by antitoxic serum, there is comparatively little to add to what could be said last year. The experiments of Freund, Grosz, and Jelinek, of Vienna, bearing on the relation of the effects of antitoxins to the processes of coagulation of the blood may be mentioned in passing. These investigators have found that neither nucleic acid nor nuclein possesses the power of counteracting the effect of diphtheria-toxins when injected together, while on the other hand histon and other substances that have a tendency to prevent coagulation are capable of keeping animals alive after the injection of ordinarily fatal doses of diphtheric poisons. While by such injections these investigators have not, so far, been able to obtain results in animals as brilliant as those that the antitoxic serum can yield, they do not think these impossible of attainment, and conclude that at any rate there must be a very close relation between the processes of blood-coagulation and those of passive immunization.

In view of the settled success of serum-therapy in the treatment of diphtheria it becomes interesting to review briefly the steps which have been taken to apply the same principle to the treatment of other infections and intoxications. It is not surprising that a large number of workers should have turned the current of their research in this direction, and that attempts have been made to prepare specific antitoxins for a whole series of diseases. In the prosecution of the work, however, unexpected difficulties have arisen on many sides, and in no one of the other infectious diseases has any success at all comparable to the results in diphtheria been as yet attained. Vaccinia, smallpox, scarlet fever, tetanus, typhoid fever, cholera, the streptococcus infections, the bubonic plague, syphilis, and tuberculosis, as well

as pure intoxications, such as poisoning by abrin, ricin, and venene, all have been studied to a greater or less extent, and with varying success. Ehrlich obtained in animals antitoxins for abrin and ricin in a high degree of concentration, but these antitoxins are naturally of limited therapeutic application in human beings, since cases of poisoning by abrin and ricin are extremely rare. The antitoxin of Calmette, Phisalix, and Bertrand, for rattlesnake-poison, has not yet been produced in a quantity or quality suitable for general application in cases of poisoning in human beings. The results with scarlet fever and syphilis so far offer but little of promise. The same may be said of typhoid fever, although in this disease Pfeiffer and Kolle claim that they have demonstrated in the blood of animals treated for some time with typhoid-toxins a substance in considerable concentration which has a specific bactericidal effect on the typhoid-bacillus. Beumer and Peiper, who injected a sheep at intervals during three months with sterile bouillon-cultures of the typhoid-bacillus, obtained from the animal a serum which possessed marked antitoxic properties, but no direct power (in contradistinction to the work of Pfeiffer and Kolle) of destroying the typhoid-bacilli. They found that when injected into small animals the serum possessed definite immunizing properties against the subsequent injection of the toxins of typhoid, and also proved that the effects of the toxins could be counteracted by subsequent injections of the serum. These observations went to prove, therefore, that the serum possessed healing or curative powers. They experimented sufficiently with human beings, they claim, to show that the injection of the serum was innocuous.

Versin, Borel, and Calmette have recently been experimenting with the bacillus of the bubonic plague, and have been able to obtain from animals an actively antitoxic serum, which they hope may soon be made available in the treatment of actual cases of the disease.

As to smallpox and vaccinia the results are still conflicting. Kramer, Boyce, Straus, Copeman, Hlava and Honl, Sternberg and Reed are among those who have interested themselves in this subject. At the present stage the only important point definitely proved is that there exists in the serum of successfully vaccinated animals certain substances which possess some powers of neutralizing vaccine-lymph, and also of immunizing certain

moderately susceptible animals against vaccinia. The investigators in this field, like those experimenting with scarlet fever and syphilis, have to deal with a disease the etiology of which is unknown, and are thus working at a considerable disadvantage, since in order to obtain the toxins necessary to concentrate the antitoxic substance in serum it is highly desirable that the microorganism which causes the disease not only be known, but also be easily cultivated.

Le serum antistreptococcique of Marmorek is a product of Pasteur's laboratory in Paris. Marmorek obtained from rabbits a serum, 0.2 c.cm. of which sufficed to protect an ordinary rabbit against a subsequent inoculation with ten times the fatal dose of a culture of streptococci. The cure of an animal after the infection was under way proved to be a more difficult matter. Marmorek found when he worked with a virulent streptococcus, infection with which ran ordinarily a rapidly fatal course, that a rabbit infected three hours before with ten times the fatal dose could be saved by the injection of 1 c.cm. of the antistreptococcous serum. He found, on the other hand, that if five hours had elapsed as much as 5 c.cm. had to be injected in order to save the life of the animal, and that after six hours even quite large quantities of the serum were of no avail. In the case of infection with streptococci of ordinary virulence, however, the animals could be saved by injection as late as twenty-four or thirty hours after inoculation. The serum was proved, therefore, to have some curative powers, but whether its favorable effect was due mainly to germicidal or to antitoxic influences is not clearly stated. Marmorek claims that the serum is specific for streptococcosus infections. He experimented with it in the treatment of 413 cases of erysipelas, 17 cases of puerperal fever, and a whole series of anginas and localized streptococcosus infections, and thought that its use had brought about a marked diminution in the mortality. It has to be remembered, however, that in a disease like erysipelas, in which the ordinary death-rate is only about 5 per cent., before we are justified in passing judgment upon the efficacy of a new treatment, experience with a much larger series of cases is necessary than when dealing with a disease like diphtheria, in which the average mortality has always been very high.

The work of Gromakowsky upon erysipelas, done in Pawlowsky's laboratory in Kiew, with the serum of immunized animals, is of too limited an extent

to add much to our exact knowledge upon the subject. The treatment of carcinoma and sarcoma with the "erysipelas-serum" of Emmerich and Zimmerman does not fall into the category with which we are at present concerned.

Were there only the foregoing results to report, the outlook could not be said to be so very encouraging, but there are three diseases, viz., tetanus, cholera, and tuberculosis, in which advances of greater promise have been made, and for which we have reason to hope that the very near future may yield results sufficiently satisfactory to warrant the use of new serums in the case of human beings.

The first experiments with the tetanus-antitoxin belong to the earliest researches bearing upon the presence of antitoxic substances in blood-serum. Indeed, tetanus was the first disease in which, as a result of animal experiment, positive immunizing and healing results after the use of antitoxin could be demonstrated. This may at first seem strange, in view of the fact that the results in the treatment of tetanus have not up to the present been more satisfactory. According to Behring, investigators had until recently been unsuccessful in obtaining a serum as rich in tetanus-antitoxin as he himself had been able to prepare nearly three years ago as a result of the introductory work done by himself and Kitasato. The greater field opened by the researches on diphtheria led Behring to abandon temporarily his investigations upon tetanus. The serum of Tizzoni and Cattani, which has been used in a number of human cases, is commonly recognized to be insufficient. In France, Nocard, Roux, and Vaillard, who have worked extensively on antitetanic serum, express the opinion as a result of their researches thus far that there is more hope of the serum proving successful as a prophylactic than as a curative agent. On the other hand, Behring stated in his address at Lübeck that Knorr had recently made such improvements in the preparation of the serum that the treatment of tetanus in human beings promises to enter upon a new era. Owing to the rarity of the disease and the expense of the preparation, however, there is some doubt as to whether the industry will ever be prosecuted on a large scale.

As to cholera, the extensive experiments of Pfeiffer have tended to show that the substances present in the blood of animals immune to cholera were not antitoxic to the toxins produced by the bacillus. Pfeiffer found in the serum what he called

Antikörper (anti-bodies), substances which were specifically germicidal to the cholera-bacilli; and while he did not claim that it is impossible to make antitoxins for cholera, they were, he thought, certainly not present in the serum with which he worked. The announcement of Ransom that he had succeeded in determining the presence of anti-toxin in the serum of animals immune to cholera was objected to by Pfeiffer on the ground that Ransom's experiments were made with doses of poison only two or three times the *dosis minima lethalis*, so that the results could fall within the domain of the effects of normal serum. Pfeiffer has the hope that these germicidal *Antikörper* may be concentrated sufficiently for use as a prophylactic agent and as a curative agent in mild human cases. That they will be beneficial in the severe cases associated with severe intoxication he thinks improbable; nay, in such cases he suggests that they might even do harm, since by destroying a large number of bacilli they would lead to an increased absorption of toxins.

Much more hopeful are the later reports of Ransom's work. He now seems to have obtained an antitoxic serum which renders harmless from four to six times the minimal fatal dose of cholera-poison. He thinks that he sees his way clear to the preparation of a serum which will render harmless ten times the minimal fatal dose, and it is promised that when this serum can be obtained in quantities it will be made generally accessible, and we shall have the opportunity of trying it in cases of cholera in human beings.

Perhaps as interesting as any are the efforts which are being made toward obtaining a serum antitoxic for tuberculosis. A most important step in the process was made when Koch did his work on tuberculin, an advance the significance of which, owing to the disappointments of an impatient world, was temporarily clouded, and a discovery which, if the prophecy of Behring be correct, will be celebrated, in the not very distant future, with greater *éclat* than that of the toxins of diphtheria. Koch was the first to draw general attention to the fact that the disease was definitely infectious. He placed under the microscope the bacillus which caused it; he devised the means of cultivating it outside the diseased individual; he separated the toxins from pure cultures of the bacillus in the shape of tuberculin, to which he showed that animals and human beings could become accustomed, and thus

put the means in our hands for the discovery of the antidote and for measuring quantitatively its strength.

Behring probably stated a great truth when he pointed out that the possession of the poison (tuberculin) is the absolutely necessary preliminary to the preparation of the future curative agent for tuberculosis. In his opinion the articles of Koch on tuberculin must be studied thoroughly by the man who will eventually find a cure for tuberculosis. Behring himself affirms that the whole serum-therapy is an outgrowth of Koch's work on tuberculin, and does not hesitate to acknowledge that he himself was led to enter upon his researches on tetanus and diphtheria simply on account of his conviction that it was possible to do with other bacterial poisons what Koch had demonstrated to be true of tuberculin. The explanation of the fact that animals could become accustomed to tuberculin was attempted at first by conceiving of a gradual development of insusceptibility on the part of living cells repeatedly subjected to moderate doses of poisons. After the brilliant researches of Behring and Kitasato with the antitoxins of tetanus and diphtheria, it became possible to think of the production of blood-antitoxins as a satisfactory explanation of the immunity which could be experimentally produced in animals to the toxins of tuberculosis.

As regards the immunization to tuberculin and tuberculosis in human beings much work has been done in various quarters. The results of Vargas, of Barcelona, with a serum prepared by Mataro, reported in a recent number of the *Revista di Ciencias Medicas*, are so remarkable that they do not seem to us to be worthy of serious consideration. Paquin's serum, obtained from horses after inoculation with cultures of the tubercle-bacillus, has for some time been on the market, and there are occasional reports concerning its use. The experiments made with it by Hewetson, in Trudeau's laboratory at Saranac Lake, would make it appear that this preparation possesses little if any power to check the progress of tuberculosis in guinea-pigs. Numerous reports have been made in Paris to the *Société de Biologie* on experiments relating to the serum-therapy of tuberculosis, but the majority of them contain but little which promises definite results.

Maragliano, in an address before the last meeting of the British Medical Association, spoke of his

experience with the serum obtained from dogs, asses, and horses, after inoculation with toxins of tuberculosis of hitherto unheard-of concentration. In this way he asserts that he obtained a serum which, when injected in suitable quantities along with tuberculin, prevented both the local and general reaction induced by tuberculin. He has used his serum in some seventy-six clinical cases of tuberculosis with, he claims, very satisfactory results. As regards circumscribed and afebrile forms of pulmonary tuberculosis, the results were exceptionally brilliant, and even in severe cases a remarkable amelioration of the condition could often be brought about.

During this year Wernicke, at Behring's suggestion, undertook to demonstrate the presence of an antituberculin in the blood of patients who had been treated for a long time with tuberculin. In this attempt he was successful, and quite recently Behring, in conjunction with Knorr, has been able to demonstrate the presence of antituberculin in the blood of animals rendered experimentally immune to tuberculin. Animals suffering from tuberculosis in a certain definite stage were given subcutaneous injections of absolutely fatal doses of tuberculin. In some, along with the tuberculin, the blood serum from an immunized animal was injected; in others the tuberculin alone was administered; all the former lived, all the others promptly succumbed. Having once determined in this way the existence of antituberculin, the next problem to be solved will be a technical one, and concerns its preparation and concentration, for then, and not till then, shall we be able to test the efficacy of antituberculin in cases of human tuberculosis. Of the experimental work of Trudeau in this country nothing has recently been made public, but much may be hoped for from this quarter.

It is obvious, therefore, that aside from diphtheria, serum-therapy offers as yet to the practising physician more of hope than of achievement. But, as Behring points out, it has always taken the world several centuries to discover a genuine curative agent, and seeing that thus far all the medicines worthy of the name can be written upon a single finger-nail, one should be content with serum-therapy did it yield no more for a long time than a cure for diphtheria. But with the combined force supplied by hygienists, bacteriologists, pathologists, and clinicians, in all quarters of the globe, we may hope that in a certain number at any rate of the

diseases to which we have referred, practically applicable results of serum-therapy may be speedily attained.

"THE DEVIL."

OLD-FASHIONED tuners of the piano were accustomed to banish the enharmonic discrepancies of the keyboard to one portion, which was called the devil. All the discords were thus shoved into one octave, which in playing was used as gingerly as possible. It was convenient, but very clumsy and unscientific. The naming of this musical (or un-musical) octave was doubtless in imitation of the theologic habit of ascribing all the inexplicable evil in the world to Satan, thus at one stroke relieving both God and man of the responsibility for sin.

It is hardly to be denied that the habit of mind illustrated by the piano-tuners and the theologians also obtains even in this scientific age in the actual practice of medicine. Perhaps we fall into the habit by accepting it from our patients who are perfectly satisfied if they may believe, e. g., that all their pains and ills are due to "the nerves," or "the rheumatiz," or a "rush of blood to the head." It may be expressed in language more or less erudite and polite, more or less mystifying, and apparently scientific, but in a final analysis, whether we call it "neurasthenia" or "the nerves," it is all one—"Doctor, I've got the nerves, *bad!*" Or, "I'm sure if my stomach was all right, *I'd* be all right."

At such pathetic *sancta simplicitas* we may at first be minded to smile cynically, but we soon find our smile becoming sympathetic with the thought that we are all more or less "tarred with the same stick." We are just as absurd in much of our pathology—we mean the pathology of routine practice, not that of the lecture-room and scientific essay, although it is not entirely absent even there. But when the average physician cannot cure, and when he can account for a morbid tendency or fact in no other way, how common, how very common, it is to shove the difficulty away into some part of the body about which he knows nothing, or which he cannot possibly reach with his therapeutics. This organ or part we might as well call "the devil," as did the old tuners of the piano, for the habit is based upon exactly the same mental characteristics.

For generations the mystic organ of womanhood was the convenient octave of discords to which were ascribed all the ills of womankind. Hysteria,

as we know, is derived from *hystēpa*, the womb, and the etymology to-day indicates a commonly accepted pathology. But even those who have emancipated themselves from this gynecologic *hystēpov* *πρότερον*, often only do but generalize and expansify the "explanation," and ascribe to the popular but nonlocalized goddess, Hysteria, the woes otherwise inexplicable and incurable. It sounds, however, to expert ears, very like the old-fashioned "the devil take her!"

In the cases of men and boys, and often in women, the explanation of hysteria becomes too far-fetched, and we are prone to rid ourselves of the labor of a more accurate diagnosis, or to hide the impotence of our therapeutics by some cabalistic word, such as "cachexia," "heredity," "diathesis," or "neurotic history." But, frankly, is it not often the piano-tuner's trick over again?

One by one the mystic source and home of pathologic discords is invaded by the modern scientific spirit of medicine, and his Satanic majesty is incontinently driven to more recondite retreats. Just at present we are witnessing his expulsion from the stomach. It is true that we are still far from understanding the mysteries of the chemistry and physiology of digestion. But precisely because of these mysteries—greater far in the past than now—the stomach has been the favorite organ to which to ascribe all incurable or nonunderstood complaints. It was clearly felt that if "the devil" could be chained up there, everybody, patient and professor alike, would feel contented that duty had been done, and that further ills must be endured in a proper spirit of resignation. Of course, if one had anorexia, headache, palpitation of the heart, morbid sleepiness, or what not else, to say "it is the stomach" is perfectly satisfactory, and there the matter should rest. If you are not satisfied with this "explanation"—well, you are a strange person, that is all!

The habit of locating the source of mysterious evils in the stomach is an old one, as may be proved by consulting the history of medicine, where may be found naïve examples. For example, in Lanfrank's *Science of Cirurgie*, the old English translation of about 1400, in treating of cataract, we read: "Signes of the bigynnyng ben these. It semeth to the patient that he seeth bright thingis tofore him & him thinkith that oon thing is ii thingis or thre, & sumtyme it semeth to him that thing that he seeth to be ful of holis, & sumtyme

these thingis may come of evil disposition of the stomach, & than it is not so greet drede therof; for whanne the stomach is curid, these signes wolen go awei. In this maner thou shalt wite wher it come of the stomach or of the eyes," etc.

When one considers the varying atrocities and outrageous abuses heaped upon the digestive tract by all nations, and especially by the lower classes of civilization, one is inclined to grow cynical when to the splendid stomach is ascribed a thousand multiform ills originating elsewhere. The conviction grows that much of all this is again a placing upon this maltreated organ the sins of discord belonging throughout the whole keyboard, and in reality modern medicine is so finding the matter out. Notwithstanding the awful dietetic and other abuses it endures, we are learning that, far from being a self-complaining organ, the stomach is wonderfully meek and long-suffering, and that, moreover, instead of only having its own evils to bear, it is made the scapegoat of the sins of many other organs. Considering the digestive function as a whole, its duty is the tremendous one of manufacturing the crude and often wretched materials given it into highly complex and perfect products for cellular nutrition. To this difficult task is often added that of caring for and getting rid of the drugs and dietetic crimes that are commanded by doctor or patient or quack, in the delusion that the stomach is at fault.

It is no exaggeration to say that tons of drugs and seas of "mineral waters" have been thrust into stomachs for headaches due solely to eye-strain. One would find it a humorously impossible task to estimate the amount of nux and cod-liver oil taken for anorexia and anemia really due again to ocular or other distant malfunction. In the minds of many physicians there will probably still long remain the habit of pushing the devil into the stomach, but the new application of the scientific spirit to diseases of the digestive tract is surely to result in finally driving him from that stronghold. In all such instances of lazy diagnosis it will more and more prove impossible to rest satisfied with this convenient bit of slipshodism. If due to the stomach, we are now coming to ask details: How? In what way? Why? How to be treated? The day has about passed when we can rest satisfied that all scientific and therapeutic duty has been done by giving a thing a name, and an inapproachable abiding-place. Test-meals, analysis of stomachal

contents, estimates of secretions, measurements, and all the rest are at last making it uncomfortable for the stomachal Mephisto. He doesn't relish the descent into his realm of "a string with a bucket-like thing." It is plain he will have to migrate to some more inapproachable abode—say the liver, or the spleen, or the medulla.

And so it is to whatever aspect of medicine we turn. The scientist is abroad in the land. His restless and unsatisfiable hunt for causes, his discontent with inaccurate and incomplete diagnoses, is fast driving the devil of disease out of all his retreats. This novel sort of "diagnosis by exclusion" is the order of the day, and the supposed evil spirit of morbidity is being hunted out of all the mysterious hiding-places consecutively given him by the laziness and ignorance either of patient or physician. Just as a scientific understanding of the laws of sound and of piano-construction banished the phonetic devil from the modern piano, so the same spirit of investigation and of thoroughness is driving his *alter-ego* of disease from any one and from all parts of the human economy. It makes the practice of medicine more onerous to the conscientious physician, and it slowly weeds out the nonconscientious and the easygoing. But this is self-evidently all the better for the profession, and especially is it better for humanity.

EDITORIAL COMMENTS.

State Children's Council of South Australia.—There are no orphan-asylums and no orphans in South Australia. This little State, with an area of 904 square miles and a population of 500,000, takes care of 1124 destitute children (Report of July 1, 1895); 996 of these children were placed out in families at an annual expense of £7976. There were 31 girls and 45 boys in the reformatory, and 50 other children in the schools for the blind and the deaf, in the lunatic asylum, and other institutions. Two children absconded during the year. During the last two years the number of destitute children has diminished. At the "Children's Court," 202 were charged with various offences during the year, an increase of 24 cases over the previous year. Only three children were found "residing in brothels." It is interesting to note the result of State care in families of children committed for criminal offences. During five years 104 girls have been "placed out," after brief training in the girls' reformatory. Of these, 62 are doing well, 25 are bad, 5 are doubtful, and 12 are not yet reported. Many of these bad girls have been enticed into the city after the expiration of their sentences, and thus easily fell into their old ways. In the care of the criminal boys a greater success has been attained. The sentence of 147 boys has terminated during the same period, and 137 are reported as doing well.

There is nothing new to report in relation to the system of placing children out. The Children's Council now has 1007 thus cared for; 616 are boarded out, 251 are licensed to service, 52 are adopted, 18 are placed out without subsidy, 49 are licensed to relatives, 2 are apprenticed, 8 are out of the colony with guardians, and the rest are in schools for defectives, in hospitals, and other places. The Council received during the year 7277 reports in relation to these children; 3382 from visiting committees; 2056 from inspectors; and 1839 from school-teachers. In classifying these reports on the conduct of the children and condition of the home, 5104 and 5354 respectively reported good; 269 and 74, fair; 57 and 9, indifferent; and 8 and 1, bad. The reports of the teachers show that the children are carefully taken care of and apparently well treated, and that with few exceptions they are well behaved.

There were 368 applications made for children: 94 from Roman Catholic families, 77 from Church of England, and 197 from other Protestant applicants; 266 of these were approved.

In the savings banks the children had £2458, about \$12,000, of their own earnings, at the beginning of the year. This has been increased by £726 deposits and £78 interest during the year; £523 has been paid to children.

Five children have died during the year. One was drowned. Rheumatic fever, congenital syphilis, lymphæmia, and marasmus, each took off one.

The Children's Council was able to collect from parents £1096 for maintenance-fees and other similar fees sufficient to make a total of over £2237. The total income of the Council was £14,276, and the net cost to the State of the work of the year was £13,104.

It is unnecessary to mention the fact that in all the Australian provinces the system of "placing out" now prevails. The method is cheaper, better, and more humane than any form of huddling the poor and miserable together, and is attended with a lower death-rate and fewer defectives.

Epistaxis through the Eyes.—A recent brief editorial note on epistaxis through the eyes develops what should be a well-known fact, *i. e.*, that many curious occurrences may escape an individual experience, however large. In response to our inquiry as to other cases similar to that referred to in THE NEWS of November 30th, we have received further reports from five correspondents.

Dr. T. L. Wilson, of Bellwood, Pa., relates the case of an old lady of seventy-eight whom he found with the blood gushing from the nostrils. After plugging the nares thoroughly with absorbent cotton dusted with tannic acid he was surprised to see the blood ooze out around the eyelids and trickle down the cheeks. This oozing continued for the greater part of an hour, being finally controlled by applications of ice to both sides of the nose.

Dr. F. L. Donlon, of New York City, reports the case of a married woman, about fifty years old, in whom epistaxis set in suddenly at 11 P.M., and had continued for several hours, when the anterior nares were plugged. In a short time the woman complained that she could scarcely see, owing to the welling up of blood into her eyes and trickling down her face. The bleeding only ceased when the posterior nares also were plugged.

Dr. G. A. Neal, of Alabama, N. Y., details the case of a housekeeper, seventy-five years old, who had had sev-

eral severe left-sided nasal hemorrhages during three days before she summoned medical aid. On plugging the affected nasal cavity, both anteriorly and posteriorly, blood immediately appeared in the corresponding eye in drops that would have trickled over the cheek had they been allowed to collect. The bleeding continued thus for several minutes. Some thirty-six hours later, and before the plugs had been removed, the woman felt more fulness than usual in the diseased nares, and blood soon again appeared in the eye. This time but a few drops passed through the lacrimal duct. The woman gave a history of having had nasal catarrh for many years, but never epistaxis, of any account at least; neither has the hemorrhage recurred.

Dr. T. G. Wright, of Plainville, Conn., narrates the case of a young man whom he found in the night bleeding profusely and having already lost a large amount of blood. Shortly after plugging both anterior and posterior nares the blood found its way through the lacrimal ducts to the eyes and trickled down the cheeks.

Dr. Charles W. Crumb cites the case of a man, sixty-five years old, with chronic nephritis, in whom a slight bruise of the nose was followed by epistaxis lasting twenty-four hours. When the nares were plugged blood escaped freely from the eyes. A cone-shaped bit of sponge, saturated with ferrous sulphate, was passed into each anterior naris, and another piece of sponge similarly medicated into either posterior naris. The patient had been taking various preparations of potassium, and it was thought that his blood contained a deficiency of fibrin. Upon removal of the nasal plugs a catarrhal inflammation developed which lasted a long time and was attended with considerable purulent discharge.

The William Pepper Laboratory of Clinical Medicine.—Philadelphia has recently been enriched by the addition to her scientific resources of the William Pepper Laboratory of Clinical Medicine, a gift to the University of Pennsylvania by the present incumbent of the Chair of the Theory and Practice of Medicine and of Clinical Medicine, in memory of his father, who occupied the same chair from 1860 to 1864, in which latter year his death occurred from pulmonary tuberculosis at the age of fifty-four years. The plans for the building were prepared by Dr. John S. Billings, the Director of the University Hospital (in especial conjunction with which the laboratory will be conducted) and Professor of Hygiene in the Medical Department of the University. Dr. Pepper will himself be the first director of the laboratory, who, together with the assistant director, is appointed annually by the Board of Managers of the University Hospital upon the nomination of the Professor of the Theory and Practice of Medicine and of the Professor of Clinical Medicine. The specific purpose of the laboratory is the promotion of the interests of the patients in the University Hospital "by the prosecution of minute clinical studies and original researches, and to advance the interests of science by the publication of the results of such work." Instruction will be given to graduates only of approved medical schools whose curriculum corresponds with that of the Medical Department of the University, and provision will be made for advanced workers engaged in original research.

Dr. Pepper has in the past been lavish to the University of Pennsylvania in the giving of time, energy, in-

fluence, and money to advance the interests and to secure the welfare of the institution with which he has for many years been so closely identified, but this last gift is the crowning act of a career marked by tireless activity and munificent generosity. He has created for himself a monument more noble than carving of stone or casting of bronze, and his example should be an incentive to others to further the great work which he has thus begun.

The University of Pennsylvania, as well as our city and State, is to be congratulated upon this welcome addition to her scientific armament from which mankind may expect so much of genuine benefit.

The Lying-in-hospital Business seems to be profitable and on the increase. The names of doctors by the dozen are appended to the circulars that frequently come to us. We have before alluded to this strabismic use of the profession. We do not say that all such institutions are bad, or indeed that any are, but it is noticeable that emphasis is always laid upon the phrases, "those who for any reason desire confinement away from home," and "a home is provided for the infant if the parents desire to part with it." It would seem from the experience of older countries in this delicate matter that there should be legislative and governmental oversight of these multiplying *lying-in* houses, or the name will degenerate into a very truth-telling pun.

SPECIAL ARTICLE.

A TRIP TO MEXICO.

BY DOUGLASS W. MONTGOMERY, M.D.,

OF SAN FRANCISCO, CAL.;

PROFESSOR OF DISEASES OF THE SKIN, MEDICAL DEPARTMENT OF THE UNIVERSITY OF CALIFORNIA.

In view of the International Exposition to be held in the City of Mexico next year, I have thought that a short account of my trip to that picturesque country last May might be of interest to the medical fraternity.

Going from California to Mexico by way of the Southern Pacific Railroad one crosses Arizona. There is no doubt of this Territory being a desert, and that the sun is mistress of the situation. She rises in the morning like "a fair, hot wench in flame-colored taffeta," and she retires at night in the same outfit. The glare is even worse than the heat, and it seemed to me that I had never seen people with more wrinkles around the eyes and with smaller "eyelids," evidently caused by the effort to keep out the intense light.

While passing through Arizona I had the pleasure of meeting Dr. Helm, of Phoenix, who gave me an account of a disease of which Dr. George Chishmore had first told me. It appears that a fly, the scientific name of which is unknown to me, deposits its eggs in the nostrils of those who lie unconscious in the sun—of a man who is dead drunk, for instance. The resulting maggots are pointed at both ends, and are called "screw-worms." Having secured lodgment, they give rise to a destructive inflammation of a most disagreeable, and, if unchecked, dangerous nature. Dr. Helm has had several cases of the malady, and says that the insufflation of calomel-powder for two or three days will destroy the pests. He had one case in which they

complicated a fracture of the lower jaw, but were quickly driven out by the treatment mentioned.

At El Paso we changed from the Southern Pacific to the Mexican Central Railroad, and here it is well to be prepared for a "cinch" of the kind that travellers in all countries are exposed to. If the Southern Pacific train reaches El Paso behind time, which I understand it frequently does, one is told that the Mexican Central train has already crossed the river to Juarez, and that one will have to hurry across after it in order to allow time for the examination of baggage. One is also told that the transfer-coupon on the through ticket is of no use in the present emergency, but that baggage-transfer company will undertake the job of getting the embarrassed traveller and his luggage across for a consideration. It can easily be seen that this little matter had better be settled with the Southern Pacific Company on purchasing the ticket, as it is likely to be arranged more satisfactorily at that time. The Mexican Central Railroad running from El Paso to the City of Mexico is really an American road, owned in Boston, and having American officials and train-hands.

On the way down I asked the Pullman conductor how they got along in the recent Pullman strike. "Oh!" he said, "we didn't strike. President Diaz sent a proclamation along the line that if any trains were interfered with, he would put a law meant for brigands into effect; that any man caught stopping a train or diligence would be taken out and shot within twenty-four hours without trial. So we didn't strike." I spoke about the strike to every train-hand that gave me the opportunity, and the strange thing about it was that they very evidently bore Diaz no ill-will for his high-handed procedure. Diaz's mode of meeting the difficulty was as high-handed as unlawful, according to our ideas, and as arbitrary as the strike itself. These same trainmen, however, could not find words strong enough to express their disapprobation of the deliberate legal measures adopted in the United States. It all means that these men, who, in ordinary questions, are shrewd and fair enough, have not yet learned to know law when they see it. The capitalist has his way of making a fool of himself, too; but, as Rudyard Kipling would say, that is another story.

The sleeping-cars are not nearly so comfortable in Mexico as in the United States. It is said that the Pullman Company sends its oldest coaches into "the dusty Republic," and one can well believe it. I had a rather amusing experience in one of them. In going from Silao to Jimenez I took the drawing-room, and at first it was delightful, especially the *sans gène* opportunity one had to wash one's self; but later on, when I went to bed, I found there was too much draft. I closed up everything, but still I slept in a tornado, and, being tired and sleepy, at last gave up the search for the mouth of the cave of the winds. Next morning I saw what was the matter. The drawing-room was at the forward end of the car, and there was a large space under the outer door of the coach, and a corresponding one under the door of the drawing-room. In order to be comfortable, therefore, the drawing-room should have been at the rear of the car. I had a first-class "cold" to pay for the experience; but this was not all. Either through some defect in the construction of the soil-pipe, or because the car was going wrong end first, each time

the water-closet lid was raised a gust of wind swept up it and straight into the drawing-room. The odor complained of by Don Quixote on the night of the adventure of the fulling-mills was at least in the open country.

In buying money do not get the notes of any of the individual States, if you do not want a too practical acquaintance with the intricacies of the modern Aztec monetary system. In El Paso, which is in the State of Chihuahua, I offered some Chihuahua State Bank notes in payment for my sleeper to the City of Mexico, but the money was refused because they were State Bank notes. They, however, took Mexican National Bank notes readily; that is to say, perfectly good State Bank notes were refused in the very State on which they were drawn. I afterward disposed of this money in the City of Mexico at a discount of 4 per cent. This is the financial system many of our own long-haired financiers would have us adopt in reviving the wild-cat State Banks in this country. Mexican silver money is a weariness to the flesh. Nothing makes a man so spendthrift as lugging a lot of silver when it is down to its true value, as it is in Mexico. Forty dollars of it is a load for a jackass. We Yankees are in better luck. Uncle Sam is the jackass.

During my entire trip in Mexico it struck me that a change from a gold to a silver monetary basis in our own country would be disastrous in regard to medical fees, and this is a view of the question that naturally most interests us. The bulk of our income is collected in small amounts in the office. These fees are largely regulated by custom, and custom would dictate that what is now a five-dollar fee in gold would continue to be a five-dollar fee in silver. This custom for the rank and file of the profession, especially in the older States, would be unbreakable. A few of the great specialists in the large cities would possibly be unaffected by it, but even they would feel it for the first few years while values were being readjusted.

The high plateau, the flattened back of the Rockies, or the Sierra Madre, as these mountains are called in Mexico, which includes nearly the whole of the area of the country, is arid and dusty. The water-supply of the cities and towns is wretched. Guadalajara, for instance, which is a large, clean-looking, well-built city, with an air of industry and thrift, has still the vicious system of bringing drinking-water from outlying springs on donkey-back. The lazy water-carriers often draw their load from a nearer, and possibly infected, source. Dr. Orvañanos has given an instance¹ of a whole family attacked by diarrhea from drinking water that showed a large amount of organic matter. Their water-carrier afterward confessed that he drew his supply from a more convenient spring than he was supposed to use. In other words, it is a system requiring more than ordinary vigilance to secure good service.

The plateau is from 5000 to 7000 feet above the sea-level, and the consequent rarity of the atmosphere, together with the arid climate, causes a rapid loss of fluid by evaporation. This must be compensated by drinking enormous quantities of liquid. It is, therefore, all the more necessary that the water-supply be pure. All the water I drank was boiled either in the form of

¹ Ensayo de Geographia Medica y Climatologia por el Dr. D. Orvañanos, 1889, page 49.

tea, coffee, soup, or simply as boiled water, till Guadalajara was reached, where natural human carelessness asserted itself, with a disagreeable diarrhea as a result.

There is a number of medical schools in Mexico, but the one in the Capital is the largest, having from 350

thing peculiar to itself to bring to the general stock of medical knowledge.

The human foot is so tender and so liable to injury that the proper protection of it has interested many men, especially army-surgeons, who see the necessity of keeping the soldiers' feet in good condition on long marches. It has often been contended that the Mexican sandal is an ideal foot-gear for marching, as it allows freedom of movement in every direction, and does not scald the foot by retaining the sweat in a confined space, as the boot is prone to do. This *guarache* or *calle*, as it is called, resembles the apostolic sandal we are accustomed to see in sacred pictures. It is made of a thick piece of cow-hide, and is bound to the foot by leather thongs. The *guarache* is picturesque, and no doubt the Mexicans find it fairly comfortable, as they are a remarkably handy people in the use of leather for all sorts of purposes, and probably can bind on a sandal much better than we could. Even so, however, its superiority to the shoe is doubtful, and this opinion would seem to be reinforced by the fact that it is being gradually discarded in the Mexican army itself. One would think that the thongs would cut into the flesh on a long march.

The clothing of the ordinary Mexican is scanty. When he sits down in a wet place he finds the fact out at once. He wears cotton drawers, a cotton shirt, sandals, a blanket, and a hat like a circus-tent. Yet there is very little pulmonary tuberculosis, although the climate at times is severe enough. This absence of tuberculosis among the Mexican Indians is in marked contrast to the condition of our own aborigines in this respect. That light raiment is not a matter of choice, but of poverty, is shown by the way the richer people wear woollen goods. In the matter of food, too, the poor live on a vegetable diet almost exclusively, while the well-to-do indulge in a wearisome number of meat-



Nervous type of leprosy.

to 400 students. The cost of maintenance and the salaries of the professors are borne by the State, the students paying no fees whatever. Five years are supposed to be occupied in preparatory studies before commencing the study of medicine, and five years in the medical school proper. They think of lengthening the time spent in the medical school to six years, which would be a mistake. Four years is long enough to give a man a good grounding in the main branches of the profession, and he should then be permitted to take his degree. After being out of leading strings he may elaborate his knowledge in any direction he pleases.

A curious and a very injurious feature of medical education in Mexico is the almost exclusive use of French text-books, or text-books translated into French. In Guadalajara, for instance, they use a French translation of Eichhorst's *Practice of Medicine*. I understand they have introduced one Spanish text-book into the school in the City of Mexico—Ramon y Cajal's *Histology*, which, if it comes up to some of the rest of that author's work, should be an excellent production. The students read the French works, but receive their lectures and answer their questions in Castillano. This continual use of foreign literature must be a clog to originality of research on the part of both professors and students, and consequently a great misfortune to both Mexico and the world, as each country has some-



Tubercular type of leprosy.

courses. In reference to this an amusing incident occurred while I was in Mexico. It appears that a number of negro families had been induced to migrate from our Southern States to Durango. In a short time the pork and flour furnished by the company gave out. As

there were neither chickens nor hogs to steal, they had to come down to the diet of the country—brown beans. Sambo could not stand that and struck out for home. As I was going down through Mexico they were straggling back to the States along the line of the Mexican Central Railroad. A Mexican on the train, in speaking of the matter, maintained, and quite learnedly, that laborers did not need meat in the Mexican climate. He himself, however, ate meat at all meals, and I especially remember seeing a nice piece of ham on his plate. As far as I can make out man eats meat in every climate, if he can obtain it.

There is considerable leprosy in Mexico, and there does not appear to be either much fear of the disease or much effort to segregate it. In the Hospital de Belén in Guadalajara there were about half a dozen lepers scattered about the wards. One of them had the atrophies, deformities, and ulcerations of the hands and feet, such as occur in neural leprosy, but the trunk, neck, and head were entirely free from disease. In fact, Dr. Garciadiego, who kindly showed me the case, drew my attention particularly to the man's magnificent physique and to the clean skin of the trunk, head, and neck. Another case presented the tubercular type, and the lepra-tubercles formed huge symmetric masses on the face, giving the patient a most peculiar appearance. I had these two cases photographed, and have inserted reproductions in this article. I saw a leper of the neural type begging at the station at Jimenez; his fingers and toes were shortened, his palms flattened, and there was paralysis of the right orbicularis palpebrarum.

SOCIETY PROCEEDINGS.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Eighth Annual Meeting, held in Washington, D. C., November 12, 13, and 14, 1895.

(Concluded from page 671.)

SECOND DAY, NOVEMBER 13TH.

Afternoon Session.

DR. JOHN A. WYETH, of New York City, delivered a memorial address on

DR. J. MARION SIMS AND HIS WORK.

He said it was safe to say that Marion Sims attained the highest position ever achieved in the history of the profession. He stands alone in this; his reputation as a surgeon was so world-wide that in any capital, in any country within the domain of civilization, he could have commanded at any time a lucrative practice. Assuredly, there does not exist in the history of surgery another such distinction. In New York, London, Paris, Brussels, Berlin, Vienna, Rome, Madrid, Lisbon, and St. Petersburg he found himself everywhere sought after, not only by the patients he could benefit, but by the leading members of his own profession, who were anxious to pay tribute to his wonderful genius. The study of his life should instil hope into the heart of every student. Born amid the most humble conditions in a backwoods county of South Carolina, he died the foremost surgeon

of his country and of the world. What a transition from the log-cabin of the poor farmer in Lancaster District to the palace of Saint Cloud, where he was the guest of Napoleon III, the trusted physician to the Empress, as he was to the highest and lowest of those who sought relief at his hands in any part of Europe!

Toward the higher and purer civilization the progress of man is slow. As yet the shadows of barbarism linger about him. His heroes are the destroyers, the Cæsars and Napoleons, who covered the earth and buried beneath it lives, sacrificed upon the altar of personal ambition. But the time must come when those whose genius and works give life and health and happiness to the world will be the first in the heart of man. In this purer temple of fame, along with those of Jenner, Ephraim McDowell, Morton, Lister, Pasteur, and others, generations yet unborn shall read the name of Marion Sims.

At the close of Dr. Wyeth's address, remarks eulogizing Sims were made by Drs. Robinson, Wilson, Nelson, Marcy, Engelmann, Kollock, Vander Veer, Gaston, Tiffany, and Westmoreland, most of whom had enjoyed his personal acquaintance.

DR. GEORGE BEN JOHNSTON, of Richmond, Va., read a paper entitled

COMPARATIVE FREQUENCY OF STONE IN THE BLADDER IN THE WHITE AND NEGRO RACES.

He said that it is commonly stated by writers on urinary diseases that stone in the bladder is of rare occurrence in the negro race. This is so at variance with the author's experience that he has instituted an investigation either to prove the statement or to correct the fallacy. He selected the States of Virginia, North Carolina, South Carolina, Alabama, Georgia, Tennessee, Kentucky, Florida, Louisiana, Mississippi, Arkansas, and Texas as the field of inquiry, and corresponded with four-hundred representative practitioners in order to procure the necessary data. He received 338 responses, 94 of which contained information and the remainder were negative. He succeeded in collecting 1068 cases of stone in the bladder. Of these, 952 were in white subjects and 116 in negroes. It is at once observed that the negro cases represent 9.55 per cent. of all cases reported. This showing is quite sufficient to disprove the idea of immunity which the negro is supposed to enjoy.

Geographically these stones were distributed as follows: Alabama, 10; Arkansas, 11; Florida, 28; Georgia, 90; Kentucky, 56; Louisiana, 19; Mississippi, 9; North Carolina, 126; South Carolina, 66; Tennessee, 128; Texas, 98; Virginia, 430.

Sex is specified in 780 cases and is not stated in 280. Of those in which the sex is indicated, there were 691 in males and 97 in females, or about seven times more males than females.

There were 182 cases not subjected to operation, and 584 in which the stones were removed by the following methods: Lateral perineal, 249; median perineal, 100; suprapubic, 138; vaginal incision, 32; dilatation of the female urethra, 28; crushing, 35; in 5 the operation was not stated.

Of those operated on 541 recovered and 43 died. No report of operation was made in 304 cases. Dr. John-

ston's own cases are incorporated in the foregoing statistics. During his twenty years' practice he has made notes in 41 cases. Of these there were 35 in whites, 6 in blacks; 39 in males and 2 in females. Thirty-nine were operated on and 2 were refused operation on account of advanced renal disease. Both of these died. In 25 cases lateral perineal lithotomy was done, in 12 suprapubic, and in the cases of the two females the urethra was dilated and fragmentation practised. There were no deaths following his operations.

DR. L. McLANE TIFFANY, of Baltimore, Md., delivered the

PRESIDENT'S ADDRESS.

He said that the aim of the Association was twofold, namely, first, to do advanced work, and, second, to bring it to the notice of and to aid other members of the profession. The Fellowship of the Association was a very extended one, embracing a large territory with infinite varieties of soil, temperature, environment, etc., yet the *Transactions* did not show those local records from which facts may be generalized, applicable to the area from which the Fellowship is drawn. It did not seem reasonable for him to suppose that a surgical operation done among the mountains of Western North Carolina would behave quite the same way that a similar operation would if done on the Gulf coast of Texas. It did not seem reasonable that similar surgical operations on the banks of the Mississippi and the central plateau of Tennessee would behave the same way. Accurately kept charts with exact and careful notes would unquestionably show differences not yet placed on record by anyone and from which much clinical information could be learned. Again, he questioned whether surgical operations undertaken during the great heat of summer, or after the long continuance of summer heat, would show similar charts or give like results when compared with operations upon patients not subjected to high atmospheric temperature, either temporary or long continued. No association had a membership better situated or more competent to carry on a series of such investigations.

DR. WILLIS F. WESTMORELAND, of Atlanta, made some remarks on

CYSTOTOMY FOR STONE.

He said that any surgeon of the present day who had had a long and extensive experience in operating for stone must acknowledge that the upper operation is better and safer. Unless there is a pathologic condition of the blood or infection of the bladder, as recognized by chemic or microscopic examination, the surgeon could decide before operation what course to pursue. Dr. Westmoreland said that the anatomy of this region, as laid down by the investigations of Strong and Peterson upon the cadaver and frozen sections, led the surgeon astray, and the observation of the surgeon is more to be depended upon than any literature we have thus far pertaining to the subject. In operations for stone, the author said that he does not care whether he sees the base of the bladder or not; that he depends upon touch, and that therefore rectal distention might be dispensed with. In the place of rectal distention he recommends that a vessel of water be suspended three or more feet above the patient according to the amount of distention necessary. When

the surgeon desires to effect distention of the bladder by a vessel, if the bladder is ulcerated at any point, with a thickening here or a thinness there, it could be done without sudden force, and if the patient during an operation should sneeze or cough, or contraction of the bladder take place, instead of contracting upon a solid mass of fluid, the fluid is forced back into the vessel and there is practically no increase in pressure.

DR. CORNELIUS KOLLOCK, of Cheraw, S. C., read a paper on

ABDOMINAL PREGNANCY.

After referring to the pathology of extra-uterine feta-tion and the classification of its varieties by early writers, he reported the following interesting case: On October 18, 1894, he saw for the first time a dark mulatto, 34 years of age, the mother of three children, whose general health had been good until within the last fifteen months. The abdomen was very much distended, measuring at the umbilicus 63 inches. Fluctuation was evident and wave-tap very distinct. The patient affirmed that she was pregnant, and that she had gone four months beyond the actual period of gestation. After a thorough examination celiotomy was decided upon, and an incision was made four inches in length below the umbilicus. The walls were so thin that the instrument penetrated the cavity before it was certain that the abdominal muscles were divided. There was a sudden and copious discharge of offensive matter. An immense fibroid was removed from the anterior portion of the sac. The cavity also contained a fetus weighing 10 pounds. The placenta had undergone fibroid degeneration, with only a small part of the placental tissue remaining. The patient was extremely weak when operated on. She lived for five or six weeks after the operation, and Dr. Kollock thinks she would be alive to-day were it not for the unfortunate intervention of intestinal obstruction.

DR. J. T. HENRY, of Chester, S. C., reported

A CASE OF EXTRA-UTERINE PREGNANCY.

The abdomen was freely opened and a large, dark mass the size of the head of an adult came into view. The uterus was crowded very much forward. The mass lay posterior to it and was very much adherent to the fundus posteriorly and to the promontory of the sacrum. The fimbria of the right tube spread out over the covering of the mass. It was with some difficulty that the mass was freed from its attachments, except that portion at the fundus of the uterus, and it was thought best to remove the uterus with it; and this was done after tying and cutting the broad ligaments. The fetus was five inches long and lay between the placenta and the uterus, the cord being attached to the left margin of the placenta. The abdomen was thoroughly washed out with sterilized water and closed without drainage. The patient sat up on the fourteenth day after the operation, was out of bed in twenty-five days, and has gained 25 pounds in weight.

DR. HENRY O. MARCY, of Boston, read a paper on

THE TECHNIC OF THE BURIED SUTURE.

He said that constant receipt of letters, from all parts of the country, containing inquiries concerning a method for the safe application of the buried animal

suture, prompted him to make this communication. At the risk of seeming dogmatism, he would venture to assert that aseptic wounds, with very few exceptions, should be primarily closed by buried tendon-sutures and hermetically sealed with iodoform-collodion. Carefully selected tendons are to be preferred for buried sutures, as primarily their anatomic constitution makes them stronger, more compact, and, as a consequence, more resistant to the softening processes that must ensue when buried in the living structures. When properly preserved, they have not been subject to bacterial decomposition, and hence may be sterilized without detriment to their ultimate elements. When tendon has been chromicized, it is best preserved in a sterilized oily fluid. Experience has shown that by far the best preserving fluid is linseed-oil sterilized by heat, to which carbolic acid has been added. Tendon improves so much when thus kept that Dr. Marcy rarely uses it until it has been in carbolic acid from three to six months. A method far too common has been to preserve chromicized catgut and tendon in absolute alcohol boiled under pressure. There is no question but that such material is absolutely sterile, but the important factor has been singularly overlooked, that by this process the chromic acid is dissolved out of the tendon, thereby leaving it less valuable than if chromic acid had not been used.

The infection of wounds may never be absolutely prevented, but the experience of surgeons teaches daily to what a marvellous extent it can be minimized, and reduced in aseptic wounds to less than 5 per cent. Not long ago the author examined his own personal experience, reviewing 600 operations, with only 2 per cent. of septic cases—evidence ample to show the safety of the coaptation of wounds by means of the buried animal suture.

One of the interesting features of the meeting was the presentation to the Association of a gavel made from the leg of the operating table used by Dr. J. Marion Sims in his office for twelve years preceding his death. It was the gift of his son, Dr. H. Marion Sims.

The following officers were elected:

President, Dr. E. S. Lewis, New Orleans, La.; *First Vice-President*, Dr. Joseph Taber Johnson, Washington, D. C.; *Second Vice-President*, Dr. Richard Douglas, Nashville, Tenn.; *Secretary*, Dr. W. E. B. Davis, Birmingham, Ala.; *Treasurer*, Dr. A. M. Cartledge, Louisville, Ky.; *Chairman of Committee of Arrangements*, Dr. W. D. Haggard, Nashville, Tenn.

Place of meeting, Nashville, second Tuesday in November, 1896.

CORRESPONDENCE.

ILLINOIS STATE BOARD OF HEALTH

vs.

NORTHWESTERN UNIVERSITY WOMAN'S MEDICAL SCHOOL.

To the Editor of THE MEDICAL NEWS,

SIR: In the July issue of various prominent medical journals appeared a letter from the Illinois State Board of Health, accompanied by a set of resolutions adopted by said Board. The undersigned, the Executive Committee of the Faculty of the Northwestern University

Woman's Medical School, having carefully investigated this matter, desire to make the following report, in order that no injustice may be done to the State Board:

The resolutions adopted by the State Board are as follows:

WHEREAS, The Faculty of the Northwestern University Woman's Medical School adopted a set of resolutions criticising the Illinois State Board of Health for having issued to three non-graduate students of said college the State certificate entitling them to practice medicine, whom they claim were not entitled to receive them, and charging the Board with having adopted a lax policy in numerous other instances, thereby seriously detracting from the usefulness of the Board; and

WHEREAS, Although the resolutions were "ordered to be placed before the Illinois State Board of Health," they were furnished to the various medical publications of the country simultaneously with their presentation to the Board, and before the Board had an opportunity to make any defence; and

WHEREAS, The said college had not made any investigation of the methods or policy of the Board, and could not be in possession of information upon which to found such serious charges; and

WHEREAS, The Secretary of the Faculty admitted to the Secretary of the Board that the resolutions were adopted without due consideration, and were not so applicable to the present Board; and

WHEREAS, In the past two years no certificate has been granted to any applicant upon an average rating less than 80 per cent. on all branches, and the questions and examination-papers and a tabulated record of all examinations are preserved, and are matters of record in the office; and

WHEREAS, It is not in the province of the Board to adopt any policy regarding the admission to its examinations of non-graduates, the law prescribing that "non-graduates shall submit themselves for examination," and further prescribing that "the examinations shall be of an elementary and practical character;" therefore, be it

Resolved, That justice demands that the Faculty of the Northwestern University Woman's Medical School, and all others interested, inform themselves as to the methods and policy of the Illinois State Board of Health in conducting its examinations, with a view to the establishment of the charges made, or of making such withdrawal, alteration, or explanation of the charges as the facts may warrant; and, further, that the Faculty inquire as to whether any individual interest or personal animosity prompted the drafting and circulating of the resolutions.

(Signed)

B. M. GRIFFITH, M.D.,
SARAH HACKET STEVENSON, M.D.

The original resolution of the Faculty of the Northwestern University Woman's Medical School, to which the above refers, is as follows:

WHEREAS, On three occasions within the past three years the Illinois State Board of Health has licensed to practice medicine in this State students who have not properly qualified themselves for such duties, and whose incompetence has compelled us to withhold the degree of doctor of medicine; and

WHEREAS, By common report we are informed that the State Board has adopted a similar policy with reference to numerous other persons; therefore,

Resolved, By the Faculty of the Northwestern University Woman's Medical School, that the State Board of Health be requested hereafter to make its examinations so rigid that persons incompetent to obtain the degree of doctor of medicine from first-class medical colleges cannot obtain licences to practice from the Illinois State Board of Health.

Resolved, That the State Board of Health be urged to do all in its power to secure a modification of the State law, so that the privilege of examination for licence to practice in this State can only be obtained by graduates of recognized medical schools in good standing.

Resolved, That for the protection of the lives and health of our people we believe it is the duty of the State Board of Health to do all in its power to prevent the entrance into the medical profession in this State of any persons not properly qualified; and, further,

Resolved, That in the interests of humanity and medical science we believe the State Board should make its standard of qualifications as high as that of the best medical colleges in this country, and that it should do all in its power to aid and encourage the efforts of the profession and the people for thorough medical education and higher requirements of licentiates and for the degree of doctor of medicine.

(Signed) MARIE J. MERGLER,
Secretary.

Relying to the State Board of Health, we beg to state that after thorough investigation we find that not only the three incompetent undergraduates referred to in our resolutions, but others similarly conditioned from our school, have been granted licence to practice medicine; and we find, further, that it is believed by medical teachers and other members of the profession that the State Board of Health has frequently conferred the licence to practise in the State of Illinois on undergraduates whose requirements were not sufficient to enable them to obtain the degree of doctor of medicine from the medical schools of the State that are recognized as in good standing by the Board of Health.

This policy is not calculated to advance the standing and active usefulness of the medical profession or to protect the public from incompetent practitioners. The Board of Health and its individual members have been repeatedly urged to discontinue this practice; but as these remonstrances have heretofore proved unavailing, the Faculty of the Northwestern University Woman's Medical School determined by public action to bring the matter to the notice of the profession, hoping thereby to obtain their aid in securing a better policy by the State Board.

The Board is in error in thinking that the Faculty acted hastily or without investigation, for it was familiar with the fact of the licensing of incompetent persons, not only from among *its* students, but among students of other schools. This practice has been in vogue since the first organization of the Board; but the last cases were, if possible, more flagrant and inexcusable than those which preceded them.

The Secretary of the State Board of Health is mistaken in stating that the Secretary of the Faculty of the

Woman's Medical School said that the resolutions were adopted without due consideration, though another member of the Faculty did admit to him that if his statements were correct, the criticisms were not so applicable to the present Board as to former Boards; however, the Secretary is not aware that the practices of the present Board differ materially from those followed by earlier ones composed of a different membership.

Shortly after the original resolution was passed, the Secretary of the State Board of Health interviewed several members of the Faculty, and on one of these occasions stated, in extenuation, that the particular individuals now in the State Board of Health constituted an entirely different Board from that of former years. We are aware that the State Board of Health changes more or less from time to time in its personnel; but one of the signers of the series of resolution under consideration has been a valued member of the State Board for many years, and we cannot understand why he should have allowed such a practice as granting licences to incompetent persons at any time without a vigorous protest.

If the policy of the Board as now constituted is better than that of former years in this respect, it appears to be only a degree, for the same official, in one of these interviews, stated that no applicants for licence were now passed on an average of less than 85 per cent. on all branches, whereas the resolutions printed above place it at 80 per cent.; but he also admitted that formerly applicants were passed on a grade of 50 per cent. It must be borne in mind that the grade obtained on an examination depends upon the nature of the questions, the fairness with which they have been given out, the honesty with which they have been answered, the care taken to prevent cheating, the fairness with which they have been marked, and the qualifications of the examiner. Questions may be peculiarly easy; proper care may not have been exercised to prevent them from falling into the hands of the applicant beforehand or to prevent communication by the interpreters or others at the time of the examination, or the examiner himself may have marked too high. For example, an examiner who knew very little of anatomy might consider a very poor paper on that subject of exceptional excellence.

The Secretary of the State Board explained to us his efforts to prevent cheating among applicants for midwives' licenses, and he led us to infer that similar precautions were taken for those taking the medical examinations. He asked if we questioned the honesty or ability of certain members of the Board of Health; but, as we stated to the Secretary thereof, we cannot understand how an ignorant person, unable to obtain a grade of more than 35 or 40 per cent. on an ordinary examination for the degree of doctor of medicine, can come before the State Board within three, six, nine, or even twelve months afterward and pass an excellent examination. Teachers know that it is impossible to acquire a knowledge of medicine with this rapidity; therefore the inference would be that 80 or 85 per cent. by the State Board of Health is equivalent to little more than 35 or 40 per cent. by the colleges. If this is so, the State Board should raise its grade still higher or mark more carefully.

It was also admitted, in one of these interviews, that

one of the persons referred to was in no way fitted to practice medicine; but it was claimed that the answers obtained from her in examination were excellent, and that the Board had no option in the matter. As a possible explanation of the excellence of the papers handed in by ignorant applicants, it was suggested that anyone could "cram" and pass a good examination on two or three subjects; and it was explained that it was the custom of the Board of Health to give those taking their examinations full credit for each and every branch in which they succeed in obtaining a passing mark, though they might utterly fail in all others. It will be readily seen that in an extreme case this policy would allow an applicant to pass one branch at a time every three months (we believe the examinations are quarterly) until the whole had been gone through, while at the time the licence was granted the person might not be able to obtain a general average of over 25 per cent. We are not informed, officially or otherwise, that the Board has even yet taken any step to correct this bad practice.

It is stated in these resolutions that the Illinois State Board of Health is not at liberty to adopt any policy regarding the admission of non-graduates to examination—that is, persons mentally or morally unfit to practice medicine must be admitted to the examination if they apply; but certainly the law cannot require the Board to issue licences to such persons. In our resolution we called upon the Board, if there were defects in the law, to make all proper efforts to have them remedied. We have not been informed, either publicly or privately, that it has made any effort in that direction.

In the resolutions by the State Board of Health we are told that the law demands that the examination shall be "elementary and practical." Though the law under which the Board of Health acts prescribes that examinations shall be of an elementary and practical character, it does not prescribe that the Board of Health shall confer on incompetent persons the privilege of practising medicine in Illinois; and the Legislature surely could have no such purpose in view when it enacted the law. If an applicant can pass a thorough examination in the elementary subjects of anatomy, chemistry, physiology, and *materia medica*, and a practical examination in pathology, obstetrics, practice of medicine and surgery, he would be able to pass the examination for the degree of doctor of medicine in almost any of the recognized colleges throughout the United States.

We deeply regret that the resolutions of the State Board of Health failed to remove the belief that their methods are faulty; and we personally know another student who obtained licence to practice during the past year who was unable to pass the examination for the degree of doctor of medicine this last spring. We have informed ourselves, so far as possible, of the methods and policy of the Board of Health, and we gladly embrace this opportunity to do it exact justice. The Faculty of the Northwestern University Woman's Medical School does not need to disclaim the suggestion that any individual interest or personal animosity prompted the drafting and circulating of the resolutions. This Faculty, individually and collectively, is friendly to the Illinois State Board of Health; but in the matter under consideration it has been constrained, as a matter

of public duty, to question the wisdom and propriety of some of its acts. We will gladly be the first to give it credit when it corrects its faulty practice, and we will gladly aid it in securing any necessary legislation for elevating the profession and for the benefit of the people.

I. N. DANFORTH,
E. FLETCHER INGALS,
MARIE J. MERGLER,
Executive Committee.

A QUESTION OF NOMENCLATURE.

To the Editor of THE MEDICAL NEWS,

SIR: I have received from the publisher of a directory a printed postal card containing a request that I would furnish my name and address, with the addition, "Please state whether allopathic, homeopathic, or other school." Is it not time that the insulting epithet "allopathic," applied to the medical body that has existed for at least twenty-three centuries, should be disallowed and rejected? If others take pride or pleasure in a sectarian title, by all means let them wear it as a badge of disgrace, but let not physicians imitate their shameful example.

Yours truly,
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PHILADELPHIA, PA., Nov. 27, 1895.

REVIEWS.

DISORDERS OF THE MALE SEXUAL ORGANS. By EUGENE FULLER, M.D., New York. 8vo, pp. 241. Philadelphia: Lea Brothers & Co., 1895.

THIS new addition to the literature of sexual disorders of the male will excite the interest of the reader for the reason that it demonstrates the fact that the greater proportion of cases of sexual disturbance depend upon tangible and evident pathologic changes in the sexual apparatus, and are not all to be loosely relegated to the groups of neuroses or of physic affections, to which only the lesser proportion of them belong. The writer, who has devoted much time and labor to the subject he discusses, finds that in the seminal vesicles, the tissues surrounding them, and in the ejaculatory ducts are to be found most of the morbid changes that give rise to sexual disorders. An excellent chapter on the pathology discusses at length the nature and appearance of these changes.

The clinical features of acute, subacute, chronic, and tubercular seminal vesiculitis are thoroughly described, while the chapter on treatment and prognosis is both practical and satisfactory. For the subacute and chronic varieties the method advocated consists of digital pressure on the vesicles—"stripping"—through the rectum, a procedure in the execution of which it may be somewhat difficult to acquire dexterity, has certainly philosophic reasoning to support it.

The chapter on anatomy, with which the book begins, is most interesting, and contains the results of evident painstaking study of minutiae of value, descriptions of which are not to be found in the ordinary work on anatomy. The illustrations, of which there are quite a number, are excellent, both as to faithfulness of representation and artistic merit.

The book is one that will command the attention not alone of the specialist, but equally of the general practitioner. It is well worth reading, and offers much in the practical way that will be of use.

DIRECTIONS FOR WORK IN THE HISTOLOGICAL LABORATORY, MORE ESPECIALLY ARRANGED FOR THE USE OF CLASSES IN THE UNIVERSITY OF MICHIGAN. By G. CARL HAUBER, M.D., Assistant Professor of Histology and Embryology. Second edition, 8vo, pp. 191. Ann Arbor, Mich.: George Wahr, 1895. Price, \$1.50.

THIS admirable little volume should prove of real service to the student of histology as a guide and aid in his work in the laboratory. It is not intended to take the place of existing text-books on the subject, but is to be employed in conjunction with these, and, while arranged especially for the classes in the University of Michigan, it can be used most advantageously by others. Its arrangement is simple, its directions clear and concise, and the ground covered ample. Suitable space is left for notes and drawings. The work is divided into two parts. The first consists of 25 lessons, which deals successively with the histology of the individual cells and tissues. In the second part are detailed methods of laboratory work, including the preparation of tissues for study. A prettily executed colored plate exhibits the several varieties of blood-elements stained according to recent methods. The book is eminently practical in character, and just such a one as the laboratory student in histology needs, and its merit should secure it a wide sphere of usefulness.

PRACTICAL URANALYSIS AND URINARY DIAGNOSIS. A MANUAL FOR THE USE OF PHYSICIANS, SURGEONS, AND STUDENTS. By CHARLES W. PURDY, M.D., Queen's University, Professor of Urology and Urinary Diagnosis at the Chicago Post-Graduate Medical School, etc. With numerous illustrations, including photo-engravings and colored plates. Second edition. 8vo, pp. xix, 351. Philadelphia: The F. A. Davis Co., 1895.

THE early exhaustion of the first edition of Purdy's *Uranalysis* justifies the favorable criticism accorded this publication. For the same reason there has not been time for extended addition to the text, although discovered errors have been corrected and two more colored plates have been introduced. We cannot do better than repeat that "this contribution of Dr. Purdy's is a useful addition to the literature of urinary examination. It is well and intelligently written, and, while taking cognizance of new tests, indorses only those that practical experience has shown to be reliable."

ANATOMY OF THE HUMAN HEAD AND NECK; GRAPHICALLY ILLUSTRATED AND DESCRIBED. By DR. SCHMIDT. Revised and edited by WILLIAM S. FURNEAUX. 4to, ill. p. 16. New York City: Thomas Whittaker, publisher.

THIS work consists of a series of folding plates, representing the chief organs in their anatomical relation to one another, together with a descriptive text written in a simple and popular style. Technical terms have been

avoided as far as possible to satisfy the requirements of the non-scientific, while, for the convenience of the students, a list of references to the plates has been inserted by the editor, which gives the scientific names of the various parts. The descriptions are accurate and clear, and the plates will be useful to practitioners for the purpose of explaining anatomical regions and operations to patients. The plates would be improved by printing the names upon the parts instead of using reference figures.

THE MEDICAL NEWS VISITING LIST, 1896. Philadelphia: Lea Brothers & Co., 1895.

THIS favorite list is now published in four styles—weekly, dated, for 30 patients; monthly, undated, for 120 patients per month; perpetual, undated, for 30 patients per week per year; and perpetual, undated, for 60 patients per week per year (without text). The first three styles contain 32 pages of text and 160 pages of blanks. The 60-patient style consists of 256 pages of blanks, wallet-size, with flexible leather cover, pocket, and pencil.

NEWS ITEMS.

The American Medical Review is the title of a new "monthly review of current medical literature" published in New York City, and edited by Dr. Daniel Lewis, in association with Dr. George B. Bradley.

Removal of The Medical News.—The editorial and publication offices of **THE MEDICAL NEWS** are to be removed to New York City on January 1st. Further particulars will be given in the issue of December 28th.

BOOKS AND PAMPHLETS RECEIVED.

Pulmonary Hypertrophic Osteo-arthropathy. By N. S. Davis, Jr., A.M., M.D. Reprint Journ. Am. Med. Assoc., 1895.

A Plea for the Cold Tub-bath Treatment of Typhoid Fever. By James Tyson, M.D. Reprint Therap. Gaz., 1895.

Bright's Disease and Insanity. By E. D. Bondurant, M.D. Pamphlet, 1895.

Address on the Founding of the Illinois Hospital. By Seth Scott Bishop, M.D. Reprint Journ. Am. Med. Assoc., 1895.

The Dilator in Diseases of the Air-passages and of the Ear. By Seth Scott Bishop, M.D. Reprint Nat'l. Pop. Rev., 1895.

The Degeneration-Chimera. An Answer to Nordau. By E. Spitzka. Reprint Am. Journ. of Insanity, 1895.

The Liver as an Organ of Elimination of Corpuscular Elements. By Gustav Fütterer, M.D. Reprint Medicine, 1895.

Surgical Interrogation-Points. By Samuel S. Wallian. Reprint Am. Therapist, 1895.

The Surgery of the Kidney and its Adnexa. By Bayard Holmes. Pamphlet. Chicago: Donnelly & Sons Co., 1895.

The Treatment of Laryngeal Tuberculosis, with a Report of Cases. By Robert Levy. Rep. N. Y. Med. Journ., 1895.

An Introduction to Pathology and Morbid Anatomy. By T. Henry Green. Revised and Enlarged by H. Montague Murray. Illustrated by 224 engravings. Phila.: Lea Bros. & Co., 1895.

The Urine in Health and Disease and Urinary Analysis, Physiologically and Pathologically Considered. By D. Campbell Black. Phila.: Lea Bros. & Co., 1895.

Disorders of the Male Sexual Organs. By Eugene Fuller. Phila.: Lea Bros. & Co., 1895.